



LEEWARD ISLANDS

1949

Annual Report

OF THE

Agricultural Departments.

ANTIGUA.

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PART I.

Annual Report

OF

Director of Agriculture

for 1949.

CONTENTS.

PART I.

Annual Report of Director of Agriculture for 1949.

	<i>Paragraph</i>
FOREWORD	1
REVIEW OF AGRICULTURAL PRODUCTION	1
Weather	1. 1
Sugar	1. 2
Cotton	1. 3
Limes	1. 4
Coconuts	1. 5
Tomatoes	1. 6
Ground Provisions	1. 7
Other Vegetables and Fruits	1. 8
Livestock	1. 9
Fish	1. 10
AGRICULTURAL STATIONS AND EXPERIMENTS	2
Central Experiment Station, Antigua	2. 1
Agricultural Station, Bayfords, St. Kitts	2. 2
Tortola Agricultural Station	2. 3
Grove Botanic Station, Montserrat	2. 4
Sugar Cane Experiments on Estates	2. 5
Cotton Experiments on Estates	2. 6
Brades Stud and Investigation Centre	2. 7
EXTENSION AND DEVELOPMENT WORK	3
Course on Agricultural Extension Work	3. 1
Land Settlement and Development	3. 2
Credit Facilities	3. 3
Soil, Water and Forest Conservation	3. 4
Marketing and Processing	3. 5
Planting Material	3. 6
Stud Services	3. 7
Shows	3. 8
Rehabilitation of Estate Agriculture	3. 9
DEVELOPMENT AND WELFARE SCHEMES	4
Federal Schemes	4. 1
Presidential Schemes	4. 2
LEGISLATION	5
Rainfall Records (Montserrat & Virgin Islands)	Appendix I
Principal Exports (Montserrat & Virgin Islands)	Appendix II
Value of Certain Imports (Montserrat & Virgin Islands)	Appendix III

PART II (a)

ANNUAL REPORT OF THE ANTIGUA DEPARTMENT OF AGRICULTURE FOR 1949.

PART II (b)

ANNUAL REPORT OF THE ST. KITTS-NEVIS-ANGUILLA DEPARTMENT OF AGRICULTURE FOR 1949.

PART I.

Report of the Director of Agriculture.

FOREWORD.

The Director's Report contains a brief résumé only of the main features of the Presidential Reports from Antigua and St. Kitts-Nevis which are reproduced *in extenso* as parts II and III of this volume. The Presidential Reports from Montserrat and the Virgin Islands are not being printed for reasons of economy but the information contained in them is summarised fairly fully in the Director's Report to which are appended statistics relating to these two Presidencies.

I. REVIEW OF AGRICULTURAL PRODUCTION.

1. 1. WEATHER during the 1948/9 season was, in general, favourable throughout the Colony. Rainfall was higher than usual and, for the most part, well distributed. Statistics are recorded in appendices.

1. 2. SUGAR. Sugar cane in Antigua made a good recovery from the protracted droughts of the previous three years. But for labour difficulties which resulted in some 4,000 tons of cane being left unharvested, production would have been about up to average. The St. Kitts crop was the third largest ever harvested and was taken off smoothly except for a fortnight's stoppage due to a waterfront strike. Nevis produced about 9,000 tons of cane but about one-fifth of this was not reaped owing to shortage of boats to transport the cane to St. Kitts for grinding.

TABLE I.

Statistics of Sugar Production.

Item.	Unit.	Antigua.		St. Kitts-Nevis.	
		1949.	1939/48 Average.	1949.	1939/48 Average.
Area reaped ...	acres	8,494	10,291	10,534	9,670
Yield of cane ...	tons/acre	18.2	14.8	27.73	26.85
Price of cane ...	\$/ton	8.34438	—	8.4482	—
96° Sugar produced ...	tons	18,338	19,374	35,667	32,579
Yield of sugar ...	tons/acre	2.15	1.88	3.31	3.33
Cane per ton of sugar...	tons	8.43	7.86	8.19	7.98
Exports of sugar ...	tons	16,791	17,615	33,781	30,671
Value of sugar and molasses exported ...	£	422,300	283,439	933,133	496,312

The variety B37161 occupied 93% of St. Kitts acreage and 55% of Antigua's. About one quarter of the Antigua cane is B4098.

In 1948, Commissions under the Chairmanship of Lord Soulbury, P.C., O.B.E., M.C., D.L., LL.D., investigated the sugar industries of Antigua and St. Kitts. Their reports, published in 1949, contain recommendations covering several phases of the industry and *inter alia*, call for strengthening of the staff of Agricultural Departments and Land Settlement and Development Boards.

In Montserrat about 150 acres of cane were grown for manufacture into rum. Some 90 acres were grown in the Virgin Islands for the same purpose.

1. 3. COTTON. Under the stimulus of guaranteed prices the acreage under Sea Island Cotton continued to expand, particularly in Antigua and Nevis which both had about twice as much land under cotton as in 1948.

Growing conditions in Antigua were excellent and the crop was by far the largest in the Island's history. The value of cotton exports from the Presidency exceeded \$754,000 (previous highest \$310,250; decennial average \$75,000), a most important contribution to its economy.

Yields in St. Kitts were satisfactory but the proportion of stains was high (20%) due to Pink Boll Worm. This pest, together with excessive rain in December 1948, also caused heavy damage to the Nevis crop; the yield was low and staining very heavy (40%). Special measures have been put in hand to tighten up control of Pink Boll Worm. Anguilla's crop was small in acreage and low in yield.

The area planted in Montserrat was 10% larger than in 1948. Its composition was:—

TABLE II.

Montserrat Cotton Acreage.

Year.	Peasants rented or freehold land.	Share cropping.	Estate cultivation.	Total.
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
1949 ...	789	1,911	1,125	3,825
Average 1939/48...	1,134	1,579	1,035	3,748

One or two people planted cotton in the Virgin Islands but only produced a total of 256 lb. lint of poor quality

TABLE III.

Statistics of Sea Island Cotton Production 1949.

Island.	Acres.	Production of lint in lbs.			Yield per acre of clean lint in lbs.		
		Clean.	Stained.	Total.	1949.	Average 1939/48.	
Antigua	...	3,550	873,564	51,300	924,864	246	137
St. Kitts	...	1,169	183,839	47,250	231,089	157	175
Nevis	...	3,106	181,010	134,381	315,391	58	113
Anguilla	...	100	4,139	725	4,864	41	73
Montserrat	...	3,825	587,917	46,049	633,966	154	165
Total	...	11,750	1,830,469	279,705	2,110,174	—	—

All clean lint was bought by the Raw Cotton Commission at prices agreed in advance of planting viz:—

TABLE IV.

Lint prices in pence per lb. f.o.b. 1949.

Grade.	1	2X.	2	3X.	3	4X.	4 and below.
Antigua and Nevis	42	41 $\frac{1}{4}$	40 $\frac{1}{2}$	39 $\frac{3}{4}$	39	38 $\frac{1}{4}$	37 $\frac{1}{2}$
St. Kitts and Montserrat	46	45 $\frac{1}{2}$	45	44 $\frac{1}{2}$	44	43 $\frac{1}{2}$	43

Stains were sold in various markets at prices around 24 cents per lb. f.o.b.

Growers who sold seed cotton to ginnermen or middlemen received about 22—23 cents/lb. for clean and 3 cents/lb. for stains.

1. 4. LIMES. Serious production is confined to Montserrat. Dieback continues to be troublesome but the principal producers have paid much attention to the replanting and regeneration of affected fields. The inter-planting of sugar cane between lime trees shows promise of controlling dieback.

TABLE V.

Lime Products: Montserrat.

		Green limes.	Raw lime juice.	Ecuelled oil.	Distilled oil.	Total calculated as limes*
		<i>Barrels.</i>	<i>Gallons.</i>	<i>lb.</i>	<i>lb.</i>	<i>Barrels.</i>
1949	...	25	40,078	418	234	5,801
Average 1939/48	...	103	42,835	871	370	6,924

*Assuming that $7\frac{1}{2}$ gallons juice and $\frac{1}{3}$ lb. distilled oil are each equivalent to one barrel of limes.

1. 5. COCONUTS. About 40 tons of copra were exported from Nevis to Barbados.

1. 6. TOMATOES. Inadequate shipping and storage facilities continue to hamper the export trade in tomatoes but 256,637 lb. were shipped from Montserrat, an increase of 30% on 1948, and 10,500 lb. from Antigua. About two thirds of all exports were to Canada, the remainder to West Indian Islands.

1. 7. GROUND PROVISIONS. Locally grown root crops and vegetables were in fairly plentiful supply most of the year.

1. 8. OTHER VEGETABLES AND FRUITS. Montserrat exported 86 tons of fruits and vegetables mainly carrots, mangoes and shallots.

In St. Kitts sugar cane planters are required by law to plant 20% of their cane land with provisions. To stimulate maize growing the Government of St. Kitts guaranteed towards the end of the year to buy all maize produced at \$4 per 100 lb. on the cob.

1. 9. LIVESTOCK. In November, an outbreak of swine fever in Tortola killed 90 pigs. It was brought under control by quarantine and vaccination. Thanks are due to the Veterinary Officer of the American Virgin Islands for valuable advice and assistance in connection with this outbreak. There was no other epidemic of communicable disease in livestock in the Colony.

Grazing conditions were good owing to favourable weather. In both Antigua and the Virgin Islands a small number of farmers have made progress in the conversion of rough grazing into good pasture. A beginning has been made towards the development of Maddens Estate in Nevis as a Government stock farm.

TABLE VI.

Exports of Livestock from the British Virgin Islands.

Year.	Cattle.	Sheep.	Goats.	Swine.	Equines.	Value (in \$).
1949	971	458	2,119	804	17	116,558
Average 1944/48	1,098	418	1,858	501	10	99,095

1949 Prices in U.S.A. cents per lb. liveweight:—Cattle 9—10;
 Sheep & Goats 9;
 Pigs 18.

Over 1,000 head of sheep and goats were exported from Anguilla to St. Martin.

In all the larger Islands supplies of fresh meat, poultry and dairy produce were generally in short supply.

1. 10. FISH. As a result of a visit from the Fishery Adviser to the Secretary of State for the Colonies, a small consignment of *Tilapia melanopleura* was obtained from the London Zoo. The fingerlings have been successfully established in a pond on a commercial farm.

AGRICULTURAL STATIONS AND EXPERIMENTS.

2. 1. CENTRAL EXPERIMENT STATION, ANTIGUA. Field experiments included two manurial trials each on cane, maize, yams and sweet potatoes, a cultural and manurial trial on tomatoes, and four trials with fodder grasses. As in previous seasons, the response of food crops to fertilizers has been very slight, but fodder grasses respond well to nitrogen alone and to phosphate in the presence of nitrogen. The tomato experiment was inconclusive owing to damage by *Eriophyes* sp. but there were indications, which will be followed up by further trials, that yields can be increased by closer spacing, by staking and by artificials.

Pedigree cotton seed was multiplied for commercial distribution. About 13½ tons of seed were produced on 57 acres. Large quantities of planting material of food and fodder crops were also grown.

The breeding of Red Poll x Senegal cattle continued. The herd now numbers 69, of which 2 are pedigree Red Poll, 21 are $\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal and 46 are $\frac{1}{2}$ Red Poll x $\frac{1}{2}$ Senegal. Eight half bred finished their lactations in 1949; they averaged 450 gallons. Seven half-bred and two three-quarter bred bulls were sold for breeding.

In a stall-feeding demonstration, it was shown that a cow with calf could be entirely maintained on one acre mixed fodder grasses.

The flock of grade Black Head Persian sheep increased to 75 by the end of the year, during which 34 were sold, mostly for breeding.

Other classes of livestock were kept in small numbers for breeding or stud purposes.

2. 2. AGRICULTURAL STATION, BAYFORDS, ST. KITTS. At this station, work is directed towards building up a herd of grade Holstein cattle from local foundation cows of creole or zebu type, and determining the most suitable grade for local conditions. At the close of the year the herd contained 17 foundation cows and 45 females of various ages and of grades ranging from $\frac{3}{8}$ to $\frac{11}{16}$ Holstein. Four $\frac{3}{8}$ Holsteins completed lactations during the year averaging 5,120 lb. of milk containing 216.4 lb. butter fat in periods ranging from 276 to 377 days. By contrast twelve foundation cows averaged 4,160 lb. of milk and 138.4 lb. butter fat in 100 to 325 days. All the animals were grazed in paddocks planted with elephant grass and received only very small amounts of concentrates. Nursery plots of other grasses and legumes have been established for trial.

Experiments in the use of artificial insemination were made during the year with semen flown from Jamaica. The results were disappointing owing to the deterioration of semen *en route*. Thanks are due to the Agricultural Department, Jamaica, for their generous co-operation which made the trials possible.

2. 3. TORTOLA AGRICULTURAL STATION. 63 acres of paddocks (guinea grass 39, elephant grass 10, guatemala grass 2, mixed 13) and 1 acre arable. Its main function is to produce improved breeding stock. A small $\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal herd has been built up. It numbers 34. Milk recording was begun in 1948 with a view to selecting away from the purely beef type towards a dual purpose animal. Three first-calf, grass-fed heifers completed lactations in 1949 giving 3,976, 3,150 and 429 lb. of milk in 338, 299 and 94 days respectively. Two bulls were sold in 1949 bringing the total number of $\frac{3}{4}$ bred sires issued to seven.

Small numbers of Black Head Persian sheep and Berkshire pigs were bred for sale, and stud animals of all classes of stock kept.

A one acre nursery is maintained to provide planting material of various kinds. The issue of 250,000 elephant grass cuttings indicates an awakening interest in the planting of fodder crops.

2. 4. THE GROVE BOTANIC STATION, MONTSERRAT. The production of pedigree seed of the Montserrat Sea Island strain of cotton for the whole Colony is centralised at this station. Each year seed of 20 selected parent plants is sown in 20 progeny rows. The plants in these rows are selfed and the seed cotton and lint of each family are subjected

to tests to weed out any off-types. Families which pass these tests are put into replicated strain trials which provide a second opportunity of eliminating any which are below par. Seed of all the surviving families is bulked and sown at the station in a first multiplication plot. The resulting seed is distributed between Montserrat, Antigua, St. Kitts and Nevis where it is bulked up to provide commercial planting seed. About 4,600 lb. of this pedigree seed was produced in 1949 from a 5 acre multiplication plot which yielded at the high rate of 460 lb/ac. of lint.

A number of observation plots of various other crops were located at the station. They included fodder grasses, sweet potatoes, tomatoes and irish potatoes; Red Bliss irish potatoes yielded at the promising rate of $4\frac{1}{4}$ tons of marketable potatoes per acre, maturing in three months. The station is also used for the production of planting material of fruit and vegetables.

2. 5. SUGAR CANE EXPERIMENTS ON ESTATES. Some 38 trials were conducted in Antigua and 35 in St. Kitts covering varieties, spacing, dates of planting, rates and dates of application of fertilizers, etc. The full data have been published as separate reports.* The most notable results and recommendations are:—

- (i) In Antigua the variety B 4098 should replace B 37161, B 37172 and B 34104 on several soil types while in St. Kitts B 41211 emerges as a strong challenger of the overwhelmingly predominant B 37161 at the lower altitudes.
- (ii) On some Antigua soils, the date of planting should be advanced from November to October or late September.
- (iii) In Antigua the standard practices as regards rates of application of fertilizers require modification in the case of some soil types, and it is regarded as important that fertilizers should be applied to plant canes within a week of planting and to ratoons before the onset of heavy rains.

2. 6. COTTON EXPERIMENTS ON ESTATES: MONTSERRAT. Two of the NP manurial trials were repeated, using two levels of N (200 and 400 lb. per acre Sulphate of Amonia) and two levels of P (200 and 400 lb. per acre of Superphosphate). The rotation trial was continued

FRESH ASH SOIL. RICHMOND ESTATE.

Yield of Seed Cotton in Ounces per plot (1/50 ac.)

	P 0.	P 1.	P 2.	Total.
N 0	1,446	1,686	1,523	4,554
N 1	1,632	1,755	1,515	4,902
N 2	1,430	1,749	1,526	4,705
Total	4,508	5,190	4,564	14,262

Average yield—1,188 lb./ac. seed cotton.

*St. Kitts Experimental Scheme: Preliminary Report on Field Experiments reaped in 1949.
Antigua ditto. ditto.

The responses to treatment were not statistically significant. The soil of the control plots was shown by analyses made by the Imperial College of Tropical Agriculture to contain 0.067% N and 231 p.p.m. P_2O_5 .

BROWN EARTH SOIL. AMERSHAM.

Yield of Seed Cotton in ounces per plot (1/54 ac.)

	P0.	P1.	P2.	Total.
N 0	677	783	741	2,201
N 1	836	912	1,062	2,808
N 2	884	880	916	2,680
Total	2,397	2,575	2,717	7,689

Average yield—720 lb./ac. seed cotton.

The figures follow very closely the pattern of last year's results and, although they do not pass the test for significance, it was clear from the appearance of the plots during growth that responses, especially to N, were real.

ROTATIONAL TRIAL. BROWN EARTH. AMERSHAM.

For full details of treatment see page 49 of 1948 Annual Report.

The cotton treatments in the trial are:—

A/Nil	Weed fallow during close season, unmanured		
A/PM	"	"	2 ton/ac. pen manure
B/Nil	Bare fallow unmanured		
B/PM	"	"	2 ton/ac. pen manure.

The B treatments were cultivated early in January and the A treatments in February. Manure was applied in February and planting done in March.

Yield in ounces of Seed Cotton: Sums of 5 subplots of 1/45 ac.

	Nil.	Pen Manure.	Total.
Weed fallow	1,096	1,357	2,453
Bare fallow	1,328	1,624	2,952
Total	2,424	2,981	5,405

Average yield—760 lb./ac. seed cotton.

Although the differences are not statistically significant, they are highly suggestive and are in line with the results of similar trials elsewhere which indicate that a bare fallow and a small dose of pen manure put up cotton yields substantially.

The section of the trial in plant cane was reaped in July. Yields ranged from 13.7 to 23.1 tons per acre. The elephant grass plots were also cut periodically.

2. 7. BRADES STUD AND INVESTIGATION CENTRE: MONTERRAT. Attempts to establish a local species of *Crotolaria* on some of the contour strips in order to assess its value as a soil restorative failed. A second attempt in which N, P, K, and lime were applied to the *Crotolaria* plots was no more successful. Of the fodder grasses planted, guatemala grass has, on the whole proved better than guinea grass or elephant grass, but none have come through dry periods well enough to provide all the year round fodder.

3. EXTENSION AND DEVELOPMENT WORK.

3. 1. COURSE ON AGRICULTURAL EXTENSION WORK. A grant of £310 under Scheme D.200 D (i) to defray travelling and subsistence expenses made this course possible. Two identical courses on extension work were organised in Antigua and attended with great benefit by 31 members of the field staff from all Presidencies, divided into two groups. The courses were ably conducted by the Assistant Adviser on Agricultural Education to the Development and Welfare Organisation, assisted by local officers. Each course was of two weeks duration and was about equally divided between lectures and practicals. The pupils were intensely interested, and thoroughly appreciated the course. The discussions and practicals vividly demonstrated the extent to which many of the staff are in need, and realise that they are in need, of technical training in many phases of agriculture.

3. 2. LAND SETTLEMENT AND DEVELOPMENT. In the 1948 Annual Report, full details were given of the lands devoted to government sponsored peasant settlement. The following additional purchases were made in 1949:—

- (i) *Antigua*. Glanvilles Estate, 256 acres, 177 ac., arable, apportioned amongst 90 tenants.
- (ii) *Anguilla*. Landsome Estate, 160 acres, 90 ac., arable for apportionment in 1950.

Lands included in Government Settlements now total about 17,600 acres, inclusive of mountain and waste land. Peasants now occupy individually about 7,254 acres on settlements and also enjoy communal pasturage rights on some thousands of acres of rough grazing. There are about 2,750 allottees of whom 1,289, occupying 2,818 acres, have bought or are in the process of buying their holdings by instalments. The remaining 1,461 people lease a total of 4,436 acres.

In Antigua a statutory Land Settlement and Development Board administers the settlements with the Agricultural Department as its agent. Elsewhere settlements are controlled by the Agricultural Department direct, but a Land Settlement Board has recently been appointed in Montserrat; at present it has advisory functions only.

Where alternative land is scarce and supervision close the majority of settlers made good use of their land. Where the reverse conditions obtain the standard of farming is apt to be low.

3. 3. CREDIT FACILITIES were made available to settlers, as in the past, through the department. The volume of business is comparatively small except in Antigua where it is expanding rapidly; 3,267 loans were made totalling \$53,455, an 89% increase on 1948. Repayments at \$32,243 were up by 100%.

3. 4. SOIL, WATER AND FOREST CONSERVATION. Numerous estates are progressively contouring their lands year by year. In Antigua, a further 350 acres were dealt with by the Department, and in St. Kitts about four miles of Khus Khus bunds were established on settlements. In Montserrat, 57 acres were conserved, mainly on large estates. Small farmers, with some financial help from Government, made 2,150 yards of bunds to protect $8\frac{1}{2}$ acres. The protection of forest and thick bush was reasonably effective in all Presidencies. Montserrat forests yielded timber and shingles to the value of about \$16,500.

3. 5. MARKETING AND PROCESSING. The following table summarises the volume and value of the principal crops marketed to or through the Department:—

<i>Island.</i>	<i>Crop.</i>	<i>Volume.</i>	<i>Value to Grower.</i>
Antigua	Sugar Cane (tons)	19,012	160,982
"	Seed Cotton (lbs.)	907,135	197,615
St. Kitts	Sugar Cane (tons)	5,417	33,798
Nevis	" "	6,541	40,672
"	Seed Cotton (lbs.)	942,439	135,205
Montserrat	" "	163,211	37,538
"	Tomatoes (30 lb. crates)	2,523	4,541

In addition, the shipment of all cotton lint (not only Government's) was undertaken in Antigua, Nevis and Montserrat by the Department which also disbursed to the various producers the proceeds of sales.

The following Government processing plants were operated:—

Maize drier and mills in Antigua and St. Kitts.

Ginneries in Nevis and Montserrat.

Cold storage in Montserrat.

Muscovado Factory in Nevis.

Small corn mills in Nevis, Anguilla and Montserrat.

3. 6. **PLANTING MATERIAL.** The multiplication and distribution of all cotton seed was supervised by the Department. The first multiplication of new sugar cane varieties from the Central Cane Breeding Station was done in Government nurseries. Several hundred pounds of vegetable seed, hundreds of thousands of cane plants, vegetable seedlings and of fodder grasses, nearly three million sweet potato cuttings and smaller quantities of many other useful or ornamental plants were sold.

3. 7. **STUD SERVICES.** The sale of breeding stock to the public is supplemented by maintaining animals at stud at numerous centres. Recorded services by Government stud animals in 1949 were:—

	<i>Antigua Barbuda.</i>	<i>St. Kitts Nevis Anguilla.</i>	<i>Montserrat.</i>	<i>British Virgin Islands.</i>	<i>Total.</i>
Stallions (A)	34	6	—	1	41
Jack Donkeys (B)	245	25	20	31	321
Bulls (C)	98	256	61	32	447
Rams (D)	30	45	20	—	95
Buck Goats (E)	25	68	—	23	116
Boars (F)	68	69	25	19	181

- (A) Thoroughbred and French Canadian Light Draught.
- (B) Kentucky.
- (C) Red Poll x Senegal, Grade Holstein, Zebu.
- (D) Blackhead Persian, West African.
- (E) British Alpine, Anglo-Nubian.
- (F) Berkshire, Large Black, Duroc Jersey.

3. 8. **SHOWS** were held in Barbuda, Tortola, Jost van Dykes and Virgin Gorda, the principal classes being for livestock.

3. 9. **REHABILITATION OF ESTATE AGRICULTURE.** Under Scheme D. 465 a further grant of £810. 5s. and a loan of £2,432. 5s. were made to one company in Antigua for the purchase of machinery, bringing the total expenditure under the scheme to £35,497. The estates which have received assistance continued to develop at a satisfactory rate. Repayments of loans totalled £7,361. 17s. 6d. by the end of the year.

4. **DEVELOPMENT AND WELFARE SCHEMES.**

4. 1. **FEDERAL D. 32A & B.** Free grants totalling £9,718. This meets the costs of maintaining the post of *Director of Agriculture, Leeward Islands*. The Director was resident in the Colony throughout the year with headquarters in Antigua. He was absent from headquarters on duty on 88 nights in the year. In addition to visiting the other Presidencies in connection with Development and Welfare Schemes and general agricultural development, the Director attended conferences

in Trinidad (Agricultural Education), Barbados (Establishment of a Federation of Primary Producers). He also paid a short visit to Puerto Rico to study the pineapple industry there. He served as a member of the General Legislative Council, as President of the West Indian Sea Island Cotton Association, as Chairman of the Estate Rehabilitation Committee (Antigua) and as a member of seven other committees connected with agriculture.

D. 726 Free grant £6,000. This provides for the maintenance of the post of *Chief Veterinary Officer, Leeward Islands*. The post was vacant throughout the year but certain essential work connected with animal quarantine and communicable diseases was performed by a private practitioner whose fees and expenses were met under the scheme.

4. 2. **PRESIDENTIAL.** Current schemes in Antigua and St. Kitts-Nevis-Anguilla are reported upon in parts II and III. In the Virgin Islands, there are no schemes in operation. In Montserrat *Scheme D. 31*, free grant of £19,829 for *Agricultural Development* defrays the cost of most of the staff of the Agricultural Department and provides funds for soil conservation and stud and investigation centres. *Scheme D. 666. Otway Peasant Settlement.* Free grant of £1,000 and interest free loan of £28,650. Only £18,100 of this sum has been taken up for the purchase and initial development of the settlement. It has been decided that further development of this settlement should be carried out as part of the general development of the Island and not as an isolated project. The balance of funds available will therefore revert to the general allocation for agriculture under the ten-year plan.

5. LEGISLATION.

Leeward Islands. No. 28 of 1949. The Larceny (Protection of Prædial Produce) Act makes provisions for the better control of prædial larceny throughout the Colony.)

St. Kitts-Nevis. No. 7 of 1949. The Land Settlement and Development Boards Ordinance, provides for the creation of a land Settlement and Development Board in each of the Islands of St. Kitts, Nevis and Anguilla.

Montserrat. S. R. & O. No. 3 of 1949. The Exportation of Fruit Order, regulates the packing, inspection, etc. of fruit for export.

S. R. & O. No. 4 of 1949, the Price of Cotton Seed Order, regulates the purchase and sale price of cotton seed for planting.

R. B. ALLNUTT.

Director of Agriculture.

APPENDIX I.

Rainfall Records (in inches).

Month.	Montserrat. 1949.			British Virgin Islands Tortola Agricultural Station.	
	Grove.	Bethel.	Brades.	1949.	10 year Average.
January ...	2.87	1.47	2.50	1.45	2.95
February ...	3.30	1.54	1.61	2.59	2.04
March ...	7.82	5.18	7.85	4.29	2.39
April ...	4.21	3.95	2.35	1.27	1.75
May ...	3.59	2.08	3.73	2.70	5.57
June ...	6.64	4.01	3.45	7.06	3.53
July ...	5.19	5.08	5.73	3.95	4.32
August ...	7.81	6.03	3.92	5.18	4.50
September ...	19.30	14.54	18.02	12.38	7.00
October ...	6.44	4.03	5.09	7.90	6.69
November ...	3.84	2.31	1.82	3.68	5.20
December ...	6.19	4.39	8.41	6.51	3.68
Total ...	77.42	54.61	64.18	58.96	49.62
Average 1942/49 ...	64.77	47.88	51.13	—	—

APPENDIX II.

Principal Exports.

Commodity.	Montserrat.				British Virgin Islands.	
	Quantity.		Value in £		Value in £	
	1949.	Average of previous 4 years.	1949.	Average of previous 4 years.	1949.	Average of previous 4 years.
Cotton Lint (bales of 400 lb.)	1,585	1,324	110,887	59,586	...	...
Cotton Seed (tons) ...	26	93	300	358	...	...
Cotton Seed Cake (tons) ...	122	24	890	173	...	...
Limes & Lime Products ...	...	...	6,113	4,424	54	69
Tomatoes (crates of 20 lb.) ...	12,832	3,055	5,057	1,131	7	27
Livestock ...	...	...	16	107	24,283	20,963
Hides & Skins (dozen) ...	567	...	344	186	...	...
Rum ...	...	...	...	...	...	34
Coconuts ...	...	...	...	...	58	421
Fish ...	...	...	...	...	1,700	2,011
Other Agricultural Produce ...	...	...	4,139	2,708	7,084	6,142
Total ...	...	...	127,746	68,673	33,186	29,667

APPENDIX III.

Value of Imports of certain Commodities in hundred of pounds sterling (£'00).

Commodity.	Montserrat.		Br. Virgin Islands.	
	1949.	Average of previous 4 years.	1949.	Average of previous 4 years.
Wheat Flour ...	271	300	107	89
Pulses ...	—	1	3	2
Rice ...	30	27	8	5
Cornmeal ...	2	3	9	8
Bread & Biscuits ...	13	9	4	4
Butter & Substitutes ...	28	18	9	6
Lard & Substitutes ...	6	7	13	9
Edible Oil ...	2	4	2	3
Preserved Milk ...	4	3	4	4
Cheese ...	4	4	6	4
Preserved Meat ...	17	25	10	6
Preserved Fish ...	65	45	4	2
Fruit & Vegetables ...	1	5	9	6
Coffee ...	5	2	3	2
Tea ...	2	2	1	1
Cocoa ...	4	3	2	1
Sugar ...	115	130	62	56
Total ...	609	588	256	208
Animal Feeding Stuffs ...	2	2	2	1
Fertilisers ...	—	1	—	—

PART II (a).

ANNUAL REPORT

OF THE

Antigua Department of Agriculture,
Lands, Marketing and Credit

FOR THE

Year 1949.



TABLE OF CONTENTS.

	<i>Paragraphs.</i>
STAFF LIST	1
PREFACE	1
SECTION I. Review of Agricultural Production...	2—14
A. ANTIGUA	
Weather Conditions	2
Sugar	3
Cotton	4
Food Production	5
Livestock	6
Statistics of exports and imports...	7
B. BARBUDA	
Preface	8
Meteorological	9
Cotton	10
Peanuts	11
Charcoal	12
Stock-raising	13
List of exports	14
SECTION II. Investigational Work	15—17
CENTRAL EXPERIMENT STATION	15
Aims and objects	15 (a--d)
General	15.1
Weather conditions	15.2
Land Usage	15.3
Buildings etc... ..	15.4
Water supplies	15.5
Fencing	15.6
Sugar Cane	15.7
Cotton Seed Farm	15.8
Food Crops I. Experiments	15.9 (a--g)
II. Total yields	15.10
III. Kitchen Garden Trials	15.11 & 15.12
Fodder crops	15.13
Cattle	15.14
Peasant Stall-feeding unit	15.15
Horses	15.16
Donkeys	15.17
Sheep	15.18
Goats	15.18 a
Pigs	15.19
Poultry	15.19 a
Animals sold	15.20
Stud services	15.21
Haymaking	15.22
GREENCASTLE NURSERY AND FRUIT FARM	16
Orchards	16.1
Pineapple observations	16.2
Nurseries and multiplication plots	16.3

TABLE OF CONTENTS.—(cont'd.)

SUGAR CANE INVESTIGATION ...	17
Recommendations ...	17.1
Experiments—1949, 1950 and 1951 ...	17.2 & 17.3
SECTION III. Extension and Development Work	18—32
A. ANTIGUA—	
Districts ...	18
Duties of an Instructor ...	19
Recommendations of Soulbury Commission ...	20
Land Settlement ...	21
Settlement Buildings ...	21.1
Water Supplies ...	21.2
Roads ...	21.3
Tractor Ploughing ...	21.4
Settlement Committees ...	21.5
Improvement of Estate Agriculture ...	22
Distribution of Planting Material ...	23
Credit ...	24
Marketing— ...	25
Cane ...	25.1
Cotton Factory ...	25.2
Fruit and Vegetables ...	25.3
Corn Fruit ...	25.4
Soil, Water and Forest Conservation ...	26
Cotton Protection ...	27
Livestock Improvement ...	28
Demonstration Plots & Plant Nurseries ...	29
Instructional ...	30
Boards, Committees, etc. ...	31
B. BARBUDA	
Distribution of Planting Material ...	32
Marketing ...	32.1
Livestock Improvement ...	32.2
Agricultural Exhibition ...	32.3
	32.4
SECTION IV. Colonial Development and Welfare	
Schemes ...	33—34
SECTION V. Summary of Agricultural Legislation	
Changes ...	35
APPENDICES—	
I. Rainfall in Antigua—1949.	
II. Rainfall in Antigua. Means 1933—1949.	
III. Temperature, Humidity and Sunshine.	
IV. Sugar Statistics. 1939—1949.	
V. Value of certain imports: Average 1945—1948 and 1949.	
VI. Principal exports from Antigua. Average 1945—1948 and 1949.	
VII. Approved financial estimates. 1949.	

STAFF as at 31st December, 1949.

Agricultural Superintendent ... C. A. S. HYNAM, D.I.C.T.A.

Experimental Section.

<i>Assistant Agricultural Superintendent</i>	...	E. R. H. MARTIN, D.I.C.T.A.
<i>Junior Assistant</i>	...	L. A. WATKINS*

Central Experiment Station.

<i>Manager</i> ...	...	R. L. V. HALL
<i>Agricultural Assistant</i> ...	...	Vacant
<i>Farm Foreman</i> ...	...	R. FRANCIS

Marketing and Credit.

Marketing Officer	...	...	L. M. F. PARRIS
Accountant	...	...	MCC. GEORGE, LL.B.

Land Settlement and Development.

<i>Agricultural Assistant</i>	...	...	V. G. PEREIRA
<i>Agricultural Assistant</i>	...	...	Vacant
<i>Junior Assistant</i>	...	...	F. E. Willock†
<i>Senior Instructors</i>	...	...	E. ROBERTS
			C. E. GREENAWAY (<i>Acting</i>)
<i>Instructors</i>	...	...	J. M. A. EDWARDS†
			D. S. LEWIS§
			E. C. SCHOUTEN
			L. E. HAYWOOD
			C. E. WINTER
			R. ARREINDELL
			L. HODGE (<i>Acting</i>)
<i>Foreman, Greencastle Station</i>	...	...	R. E. M. WHYTE,

Protection Service.

Forestry and Cotton Protection Officers ... R. V. CAMACHO
C. K. G. VIEIRA (*Acting*)

*Acting Agricultural Assistant.

†On study leave throughout the year.

†Acting Agricultural Assistant.

§ Acting Junior Assistant.

PREFACE.

1. The change in the name of the report of this Department has been made because of the fact that activities which commenced in past years on a small scale as subsidiary to the work of the Agricultural Department have now assumed proportions which in other circumstances would have justified the formation of separate Departments.

Section I.

REVIEW OF AGRICULTURAL PRODUCTION.

(A)—ANTIGUA.

(Population approximately 42,000)

2. WEATHER CONDITIONS.

The average rainfall recorded from 48 stations was 49.03 inches which is 6.84 inches above the average (42.19 inches) for the seventeen years 1933-1949. The lowest for 1949 (37.80 inches) was recorded at Betty's Hope and the highest (61.29 inches) at Wallings.

Appendices I and II give details of rainfall for 1949 and the period 1933-1949 respectively.

There were no tropical disturbances. The lowest reading of the barometer was 29.757 inches on December 13th and the highest, 30.212 inches on February 8th.

Averages for the year were, at 9 a.m. 30.013 inches and at 3 p.m. 29.951 inches.

Monthly averages are given below:—

Table I.

Barometer Readings.

(inches of mercury)

Month.		Average.	
		9 a.m.	3 p.m.
January	...	30.030	29.958
February	...	30.089	30.016
March	...	30.018	29.961
April	...	30.069	29.966
May	...	30.013	29.944
June	...	30.054	30.048
July	...	30.056	29.996
August	...	30.010	29.944
September	...	29.970	29.907
October	...	29.961	29.903
November	...	29.957	29.889
December	...	29.929	29.987

Temperatures recorded at the Cotton Station varied from mean maxima of 86.6° in August and 80.1° in January to mean minima of 76.7° in June and 69.6° in February. Average humidity at the above-mentioned station varied from 84.5 in September to 73.1 in April and average hours of sunshine from 9.4 in October to 6.2 during 18 days of September. Sunshine during May to August and 12 days of September was not recorded.

These Cotton Station figures as well as the details in Appendix III have been made available for this Report through the courtesy of the Cotton Officer for the West Indies.

3. SUGAR.

The Antigua Sugar Factory Ltd., produced 18,263 tons grey crystals and 4,233.32 tons final molasses from 154,046 tons of cane ground.

The crop was started on March 3rd. This late start was due to weather favourable to good growth being experienced early in the year and the decision to take advantage of anything that would tend to improve what was obviously going to be a short crop.

Reaping was however extremely slow although there were no major strikes, and the Factory finally ceased work on August 27th leaving about 4,000 tons of cane unreaped.

The Montpelier Factory (Antigua Distillery Ltd.) produced 75 tons of muscovado.

Approximations of the percentages of different varieties reaped in 1948 and 1949 are as follows:—

Table II.

<i>Variety.</i>	<i>1948.</i>	<i>1949.</i>
B3439	12.3	7.6
B34104	22.8	9.2
B37161	55.7	55.2
B37172	2.3	3.1
B4098	6.7	24.2
Mixed and Others	0.2	0.7

Export sugar from the Antigua Sugar Factory Ltd. was sold to the Ministry of Food at £24 10. 0. (\$117.60) per ton c.i.f. plus £2 15. 0. (\$13.20) per ton to be held by the Antigua Government as Special Funds for Rehabilitation, Price Stabilization and Social Welfare.

Non-contracting suppliers received a total of 34s. 2d. (\$8.20 B.W.I.) per ton of cane, and contractors, including contracting peasant settlements, a total 34s. 9.219d. (\$8.34438).

The area reaped during 1949 was approximately 8,494 acres and that to be reaped in 1950 approximately 8,712 acres which includes 232 acres at Montpelier and the cane which was left standing at the end of the 1949 crop.

It is gratifying to note that for the past many years, the small cane borer (*Diatraea saccharalis*) infestation remains at around 6% of joints bored. This must be attributed to the control exercised by the introduced parasite *Lixophaga diatraea* which is still being released annually by the Antigua Sugar Factory.

The 1948-50 plant cane crop benefited enormously from favourable rains in 1949 as did the ratoon crops and a crop of not less than 27,000 tons of sugar is hoped for in 1950.

Unfortunately however, owing to cultivation and drainage of the heavier soils not being completed during the dry spells, much of the tilth of ploughed lands has been partially lost. This will undoubtedly affect the 1949-51 plant cane crop and subsequent ratoons from this area.

Table III gives some comparative statistics covering 1949 and the previous 10-year period. More details are given in Appendix IV.

TABLE. III.

	1949.	Previous 10 years.		1933-1948.
		Average.	Highest.	Lowest.
Acres Reaped ...	8,494	10,291	12,669 (1940)	8,525 (1944)
Total Tons Sugar ...	18,338	19,374	26,146 (1946)	12,174 (1948)
Tons Cane Per Acre Cut	18.2	14.8	20.7 (1946)	9.8 (1940)
Tons Cane Per Ton Sugar ...	8.43	7.86	8.71 (1942)	7.15 (1945)
Tons Sugar Per Acre ...	2.15	1.88	2.73 (1946)	1.1 (1940)

4. COTTON.

The 1948-1949 crop reaped from an estimated 3,550 acres was the largest in the history of Antigua. Total production including 6,640 lbs. from Barbuda amounted to 873,564 lbs. clean lint and 51,300 lbs. stains.

Table IV gives some statistics covering the season under review and the previous ten seasons and Table V gives the Raw Cotton Commission's grading of clean lint exported to them during 1949 and the two previous seasons.

TABLE IV.

	1949.	Previous 10 year period: 1939 to 1948.		
		Average.	Highest.	Lowest.
Acreage reaped	3,550	1,985	4,826 (1940—41)	498 (1946—47)
Production clean lint—lbs.	873,564	271,097	659,376 (1940—41)	73,530 (1942—43)
Production stains—lbs.	51,300	—	—	—
Total—lbs.	924,864	—	—	—
Yield per acre clean lint—lbs.	246	137	253 (1945—46)	82 (1942—43)
Yield per acre stains—lbs.	—	—	—	—
Yield per acre total—lbs.	—	—	—	—
Average price per lb. clean lint—f.o.b. ...	\$.78*	\$.47	\$.63 (1947—48)	\$.33† (1938—39)
Price paid for clean seed cotton... ..	\$.22*	—	—	—
Value of lint exported... ..	\$737,946.64	\$70,679.40‡	\$299,722.48 (1940—41)‡	\$35,300 (1942—43)‡
Value of seed exported	\$ 16,672.27	\$ 4,525.78‡	\$ 10,526.00 (1941—42)‡	\$ 561.60‡ (1942—43)

*To nearest cent.

†Approximately.

‡Figures for only 9 years available—1939 figures missing.

TABLE V.

Cotton Grading.

NUMBER OF BALES.

Season.	Grade.											
	1.	2x.	2.	3x.	3.	3ss.	4x.	4.	5x.	5.	6.	Total.
1946—1947	—	28	45	116	65	—	—	5	—	—	—	259
1947—1948	—	13	80	108	—	495	—	—	—	—	—	696
1948—1949	48	146	392	310	1,053	193	442	279	2	5	1	2,871

SS—Short Staple.

There were heavy attacks of the cotton leaf worm early in the season, and fairly heavy attacks of the pink boll worm.

The Department continued to exercise very close supervision over all handling and ginning operations.

The entire crop of certified clean lint was sold to the Raw Cotton Commission.

Planting of the 1949-1950 crop commenced in September. Those who had prepared their lands in advance of the commencement of the season got off to a good start, but late cultivation was seriously retarded in many cases by heavy rains. Fairly heavy attacks of the cotton leaf worm were experienced in some districts. The estates sprayed regularly with lead arsenate and peasants continued to give more attention to this than in previous years.

By the end of the year it was estimated that about 4,000 acres had been planted.

Twelve meetings of the Board of Management of the Antigua Cotton Growers Association and one General Meeting were held during the year. This Association which is a member of the West Indian Sea Island Cotton Association continued to give very valuable service to the industry by negotiating about prices, grades, etc.

5. FOOD PRODUCTION.

There was, in general, a sufficiency and on occasions an abundance of ground provisions and vegetables throughout the year.

During the first quarter more tomatoes were produced than were consumed locally. About 10,000 lbs. were shipped to Trinidad and approximately 500 lbs. to St. Kitts. In spite of lack of cool storage and transportation difficulties very good reports were received of these tomatoes and it was hoped that all of the surplus would have been absorbed by Trinidad but shipments had to be discontinued owing to Trinidad grown tomatoes coming on to the market.

6. LIVESTOCK.

No epidemic disease was reported during 1949 and the general health of the island's livestock appeared satisfactory.

Throughout the year the Department was without the services of a full time Veterinary Officer. Veterinary attention was given, when required, by Dr. A RAEURN, a Veterinarian in private practice.

7. STATISTICS OF EXPORTS AND IMPORTS.

See Appendices V and VI.

(B)—BARBUDA.

(Population approximately 1,000).

8. No officer of the Agricultural Department is stationed here. The Department functions in an advisory capacity only.

In October, the Warden, Mr. A. M. TAYLOR, was transferred to Antigua and Mr. C. A. GOMEZ, a retired Agricultural Officer was appointed to act as Warden.

The following are extracts from the Acting Warden's Report. (*See also Section III. Extension and Development Work.*)

9. METEOROLOGICAL.

The year passed without any tropical disturbance approaching the island sufficiently near to cause any alarm. The island however benefited by the heavy rains following two tropical disturbances, which passed to the west in September, when the high rainfall of 12.10 inches was recorded.

The hurricane season and the latter part of the year were marked by frequent spells of very calm weather. The highest reading of the barometer was 30.10 inches on 10th August and the lowest on October 1st was 29.90 inches.

The rainfall for the year was 42.54 inches.

10. COTTON.

During the year 19,483 lbs. seed cotton was purchased; from this 6,640 lbs. lint was obtained. The high percentage of lint recovered was 34.08%, which is very satisfactory. A first payment of fourteen cents per lb. seed cotton was made and after all expenses were deducted a bonus or second payment of 7.5c. per lb. seed cotton was made. This has restored much confidence in the industry and future years should see increased cotton production.

11. PEANUTS.

A much increased area was planted during the year and production will show considerable improvement although yields will not be high. This, in the main, is due to two reasons:

see

- (1) The heavy attacks of the *Uredo* fungus.
- (2) The indiscriminate planting in unsuitable soil types, peasants having shifted some of their peanut grounds from the black soil to the sand.

Peanuts in increased exportable quantities will come into maturity early next year.

12. CHARCOAL.

The burning of charcoal forms a daily routine in the island and a steady traffic exists with Antigua and St. Kitts. This forms a reliable source of income to the inhabitants, who work on this product and the many sailing crafts which transport same to the islands. It is estimated that 7,196 bags of charcoal were exported at a valuation of a little over \$5,000.

13. STOCK RAISING.

The condition and health of the animals showed marked improvement as a result of the abundance of fodder which the pastures produced under the favourable weather conditions which prevailed.

On the whole the large stock are not on the increase either in numbers or quality. There is urgent need for new blood in horses, cattle and sheep and the introduction of new studs is now indicated.

14. Table VI hereunder gives a list of exports from the dependency (chiefly to Antigua) during 1948-1949.

TABLE VI.

Commodity.	1948.		1949.	
	Quantity.	Value. \$	Quantity.	Value. \$
Seed Cotton (lbs) ...	9,634	1,445	19,483	4,189
Charcoal (bags) ...	7,500	4,200	7,196	5,060
Livestock:—				
Donkeys ...	11	66	2	20
Horses ...	14	1,008	8	400
Mules ...	7	672	4	480
Goats ...	313	1,084	306	918
Cattle ...	38	1,824	32	1,280
Sheep ...	140	390	130	520
Pigs ...	3	28	—	—
Misc. Brooms ...	—	683	496	250
Total ...		11,500		13,117

Section III.

INVESTIGATIONAL WORK.

15. CENTRAL EXPERIMENT STATION.

Aims and Objects.

- (a) To keep a very high standard of Agriculture, including Animal Husbandry, before Antigua and the Leeward Islands.
- (b) To work out as the result of experiments adaptations of the above, which can be of early practical value.
- (c) To multiply selected planting material and stock for distribution direct to estates and small holders or to sub-stations and Demonstration and Stud centres throughout Antigua and the Leeward Islands.
- (d) To train personnel for Agricultural service in private or public capacities in the Leeward Islands.

15.1. GENERAL.

Work on the site of this station started in 1945. Owing to modifications of the original Scheme and restrictions on the building programme the bulk of the developmental work was not completed until the end of 1948.

Three of the principal soil types are represented on the Station:—Fitches, Wetherells and Gunthorpe clays.

The Station is under the immediate control of a resident Manager. The only other full-time employee with the exception of semi-skilled stockmen, labourers, etc., is a Farm Foreman. This staff is proving inadequate to carry out the programme of work laid down and it is hoped that at very least one qualified Agricultural Assistant will be appointed during 1950.

15.2. WEATHER CONDITIONS.

Comparative rainfall figures for the year under review and the two previous ones are given hereunder in Table VII. As this Station is adjacent to the Cotton Station referred to in Section I temperatures and humidity are similar.

TABLE VII.

Month.			1947.	1948.	1949.
			inches	inches	inches
January	...	...	3.97	2.82	1.56
February	...	...	.57	.57	2.07
March	...	...	.59	1.89	5.52
April	...	...	.67	.59	3.54
May	...	...	3.34	2.80	1.98
June	...	...	1.49	3.38	3.35
July	...	...	2.97	1.37	2.10
August	...	...	2.50	2.29	6.66
September	...	...	7.82	3.79	10.92
October	...	...	4.28	8.69	5.85
November	...	...	.43	3.08	2.59
December	...	...	.21	3.42	2.98
			28.84	34.69	49.06

15.3. LAND USAGE.

The following table shows the utilization of developed land as at the end of the year.

TABLE VIII.

Utilization.	Acreages.
Cane Nurseries & Experiments	32.50
Food Crop experiments	3.18
Food crops, other than experiments	40.60
Paddocks—Hay Grass and Guinea Grass mainly	204.00
Vegetable garden and Seedling nursery	1.80
Fodder crops	22.62
Cotton	57.00
	361.70

The total acreage of the Station is 599.3.

15.4. BUILDINGS, ETC.

New construction during 1949 consisted of

- 1 concrete drying floor for cotton
- 4 sheds in paddocks
- 1 catching pen
- 1 pig pen
- 18 mineral boxes in paddocks
- 3 water troughs

The mineral boxes were constructed out of concrete as wooden structures were found to be very expensive to maintain.

Buildings on the Station as at the end of the year consisted of:—

- Offices, library and laboratory
- Manager's house
- Worker's cottages (5)
- Stables
- Implement sheds (2)
- Buildings for stores and cotton (2)
- Bull pens (2)
- Dipping tank*
- Fumigatorium
- Calf boxes
- Dairy with milking machine
- Sheep pen
- Goat pen
- Pig pen
- Sheds in paddocks (5)
- Garage

15.5. WATER SUPPLIES.

A windmill was erected over the well dug in 1948 on the spot indicated by Mr. C. Bell, a water diviner from Jamaica. The water is being pumped to an overhead tank (10,000 gallons capacity) which supplies most of the livestock requirements.

In addition water from buildings is preserved in six cisterns (total capacity 143,000 gallons) and surface water in two ponds estimated to hold about 230,000 gallons. All cisterns and ponds overflowed in September and were well up at the end of the year.

During the year pipes of inferior quality which perforce had to be used in 1945-1946 gave considerable trouble. Much of this piping was taken up and replaced with material of better quality.

The total length of pipe from tanks, cisterns and ponds to water troughs, faucets, etc., amounts to 16,210 feet.

15.6. FENCING.

The fencing programme was held up during 1948 owing to lack of material. A large shipment of wire arrived during 1949. Much of the fencing wire used at the beginning of the scheme has not stood up

*This also serves the cattle of the surrounding peasantry.

and has had to be replaced by more durable material. To prevent rusting all rolls of the new material used were first dipped in hot tar.

15.7. SUGAR CANE.

Two permanent manurial trials on Gunthorpes and Fitches-Wetherell clays respectively laid down in 1948 for reaping in 1950 were maintained. Large nurseries of standard and new varieties were maintained and cuttings utilized in the island wide experiments referred to elsewhere.

15.8. COTTON SEED FARM.

One hundred and fifty-one pounds of pedigree seed were obtained from the breeding station in Montserrat in 1948. This was planted in the best of the available fields (16.2 acres in extent) and yielded 19,580 lbs., clean seed cotton (about 13,000 lbs., seed) an average of 1,208 lbs., clean seed cotton per acre.

Second generation pedigree seed was planted in 40.7 acres of poorer Wetherells and Fitches clay. This yielded 26,064 lbs. clean seed cotton (about 17,300 lbs. seed)—an average of 707 lbs. clean seed cotton per acre.

Seed cotton was sold to the Marketing Section. After ginning this seed whose genetical purity is guaranteed within reasonable limits was sold to growers.

Similar sized areas were planted during the year with first and second generation pedigree seed for reaping in 1950.

15.9. FOOD CROPS.

I. Experiments

(a) Manurial Trial on Yams

Soil type—Fitches clay

Planted—17/7/48

Layout—Two 5 x 5 Latin Squares

Variety—

Manures applied—Artificials on 23/9/48

Pen manure on 22/7/48

Rainfall during life of crop—25.84 inches

two weeks previous to planting—0.69 ins.

Reaped—7/3/49.

<i>Experimental treatments</i> (per acre)	<i>Yields (tons tubers</i> <i>per acre)</i>
1. Nil—No manure	4.7
2. N —2 cwt. Sulphate of Ammonia	5.1
3. P —2 cwt. Superphosphate (18% water soluble P_2O_5)	5.0
4. NP—2 cwt. Superphosphate plus 2 cwt. Sulphate of Ammonia	5.4
5. D —10 tons pen manure	5.4

Small increases only were obtained from manures and it is doubtful whether these would be economic. In years of drought, responses have been more uncertain. It is hoped that trials involving time of application of manure will be laid down in 1950.

(b) MANURIAL TRIAL ON YAMS.

Soil type—Gunthorpe clay

Layout —Two 4x4 Latin Squares

Planted —18/5/48

Variety —White Lisbon

Manured—28/6/48

Rainfall during the life of the crop—30.11 inches

Rainfall during two weeks previous to planting—1.08 inches

Reaped—9/2/49.

<i>Experimental treatments</i> (per acre)	<i>Yields (tons tubers</i> <i>per acre)</i>
1. Nil—No Manure	7.8
2. N —2 cwt. Sulphate of Ammonia	8.4
3. P —2 cwt. Superphosphate	7.6
4. NP—2 cwt. Superphosphate plus 2 cwt. Sulphate of Ammonia	7.9

On the Gunthorpe clay, under the conditions of the experiment, responses to manures were uncertain.

(c) MANURIAL TRIAL WITH SWEET POTATOES.

Soil type—Fitches clay

Layout —One 5x5 Latin Square

Planted —21/6/49

Variety —B44

Artificial manures applied—20/7/49

Pen manure applied—11/6/49

Rainfall during the life of the crop—29.64 inches

Rainfall during two weeks previous to planting—1.04 inches

Reaped—30/11/49

<i>Experimental treatments</i> (per acre)	<i>Yields (tons tubers</i> <i>per acre)</i>
1. Nil—No manure	 9.9
2. N —2 cwt. Sulphate of Ammonia	 8.9
3. P —2 cwt. Superphosphate (18% water soluble P ₂ O ₅)	 9.1
4. NP—2 cwt. Superphosphate plus 2 cwt. Sulphate of Ammonia	 10.3
5. D —10 tons pen manure	 10.5

The experiment was well established and always looked vigorous and uniform despite a spell of dry weather around August. Responses to manures were not consistent and were small.

(d) MANURIAL TRIAL WITH SWEET POTATOES.

Soil type—Gunthorpe clay

Layout —Two 4x4 Latin Squares

Planted —18/5/49

Variety —B44

Artificial applied—16/6/49

Rainfall during life of crop—31.05 inches

Rainfall during two weeks previous to planting—71 inches

Reaped—12/9/49.

<i>Experimental treatments</i> (per acre)	<i>Yields (tons tubers</i> <i>per acre)</i>
1. Nil—No manure	 4.6
2. N —2 cwt. Sulphate of Ammonia	 4.6
3. P —2 cwt. Superphosphate (18% water soluble P ₂ O ₅)	 4.7
4. NP—2 cwt. Superphosphate plus 2 cwt. Sulphate of Ammonia	 4.3

The stand was irregular and the area was severely attacked by "Jacobs" (*Euscepes batatae*). No gains were obtained from manures under the conditions of the experiment.

(e) MANURIAL TRIAL ON MAIZE.

Soil type—Fitches clay

Layout —One 5x5 Latin Square

Planted —18/6/49

Manured—Artificial applied on 20/7/49

Pen manure applied on 11/6/49

Rainfall during life of crop—29.39 inches

Rainfall during two weeks previous to planting—1.33 inches

Reaped—10/11/49.

<i>Experimental treatments</i> (per acre)	<i>Yields (lbs. cob corn</i> <i>per acre)</i>
1. Nil—No manure	2,220
2. N —2 cwt. Sulphate of Ammonia	2,294
3. P —2 cwt. Superphosphate	1,850
4. NP—2 cwt. Superphosphate plus 2 cwt. Sulphate of Ammonia	2,812
5. D —10 tons pen manure	2,442

Results were very poor. The crop germinated well and seemed to advance well up to the end of the dry spell. After that the area suffered, apparently from excess moisture and the final crop was very stunted, the cobs also being small and poorly filled.

There are indications that N and P together might be beneficial but gains were not large under the conditions of the experiment.

(f) MANURIAL TRIAL ON MAIZE.

Soil type—Gunthorpe clay.

Layout —Two 4x4 Latin Squares

Planted —11/5/49

Manured—16/6/49

Rainfall during life of crop—16.97 inches

Rainfall during previous two weeks to planting—3.29 inches.

Reaped—3/9/49.

<i>Experimental treatments</i> (per acre).	<i>Yields (lbs. cob</i> <i>corn per acre).</i>
1. Nil—No manure	2,790
2. N —2 cwt. Sulphate of Ammonia	2,610
3. P —2 cwt. Superphosphate	2,655
4. NP—2 cwt. Superphosphate plus 2 cwt. Sulphate of Ammonia	2,880

Responses to manures were negligible.

(g) TOMATO EXPERIMENT, to obtain information *re* differential responses to artificials, staking and spacing.

Soil type — Fitches clay

Planted — 16/10/48

Reaped — Early 1949

Layout — Two randomised blocks each containing two main plots, each main plot split into two sub-plots, and sub-plots in turn split into four sub-sub-plots.

Treatment— Main plots—(a) Trellis staking

(b) No staking

Sub-plots— (a) Spacing 2 ft. apart on 3 ft.
banks (Normal)

(b) Spacing 1 ft. apart on 3 ft.
banks (Close).

Sub-sub-plots—O—No manure

N—1 cwt. Sulphate of Ammonia

NP—1 cwt. Sulphate of Ammonia plus

1 cwt. Superphosphate

NPK—1 cwt. Sulphate of Ammonia plus

1 cwt. Superphosphate plus

1 cwt. Muriate of Potash

Whole plot area	8 ac.	:	8 ac. effective
(Staking)	$\frac{90.7}{151}$		
Sub-plot area	4 ac.	:	4 ac. „
(Spacing)	$\frac{90.7}{151}$		
Sub-sub-plot area	1 ac.	:	1 ac. „
(Manurial)	$\frac{90.7}{151}$		

YIELDS.

Staked plots	....	....	13,439 lbs. p.a.
Unstaked plots	....	....	12,080 „ „
Normal spacing plots....	....	....	10,570 „ „
Close spacing plots	....	....	14,949 „ „
No manure plots	....	....	11,835 „ „
Sulphate of Ammonia plots	....	....	12,270 „ „
Sulphate of Ammonia plus Superphosphate plots	....	....	13,780 „ „
Sulphate of Ammonia plus Superphosphate plus Muriate of Potash plots	....	....	13,194 „ „

The difference in favour of close spacing is statistically significant although owing to poor development in the early stages due to mite attack (*Eriophyes sp.*) not too much emphasis should be placed upon this.

There were some indications of positive response to staking and also to fertilizers, phosphate in particular; although these were not statistically significant they were large enough to warrant further trials.

15.10. II.—TOTAL YIELDS—EXPERIMENTS, FIELD TRIALS AND MULTIPLICATION PLOTS.

Crop.	Total Acreage.	Total Yield lbs.	Rate per acre lbs.
Maize ...	7.20	14,798 (cob).	2,041.4
Yams*	5	15,250	3,050
Sweet Potatoes ...	17.10	180,000	10,526.3
Cowpeas ...	2	5,000	2,500
Lima Beans ...	4.75	1,500	315.8
Soya Beans ...	2.50	1,300	520
Tomatoes ...	2.05	1,500	731.7

*Planted in 1948.

NOTE—Yield from experiment (g) above not included.

The above is the total of all plantings—early and/or medium and late. Early plantings did well but late plantings were retarded or damaged by heavy rains.

The extremely low yield of tomatoes was similar to the yield obtained in 1948. Plants were severely attacked by what appeared to be a "wilt", but Dr. Keith Parris of Leesburg, Florida, during a visit to Antigua attributed the condition of the plants to the depredation of an almost microscopic mite (*Eriophyes sp.*), numbers of which were seen after very careful examination with a lens and under the low power of a microscope.

Heavy dustings with flowers of sulphur appeared to exercise very effective control, but this was discovered too late to have much effect on ultimate yields.

New plantings made at the end of the year for reaping in 1950 were dusted regularly with flowers of sulphur. Up to the end of the year the mite had not been observed.

15.11. III.—KITCHEN GARDEN TRIALS.

An area of just over an acre was intensively cultivated throughout the year. Plantings were made at intervals but owing to heavy rains and other reasons sowings were not as regular as at first planned.

The following table indicates comparative results at the time of reaping. Sweet Peppers "California Wonder" planted late were doing well at the end of the year. "Paramount" Parsley which gave good results in 1948 was never properly established during 1949 in spite of several attempts.

15.12. TABLE IX.

	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Cabbage "Succession"	...	...	...	VP	...	...	...	...	...	VG	...	...
Cauliflower "Early Patna"	...	...	...	P	...	...	...	...	...	G	...	...
Turnip "White Globe"	...	...	...	P	...	...	...	...	...	...	...	...
Shallot "local"	...	...	...	...	...	VG	...	...	...	...	...	...
Beet "Improved Blood"	...	F	...	...	VG	...	VG	P	...	...	F	...
Carrot "Chantenay"	VG	G	...	...	VG	...	VG	...	...	...	P	...
Lettuce "Mignonette"	Can be grown all the year round with success.											
Onion "Crystal White Wax"	...	...	...	G	...	...	...	...	...	...	...	...

VG—Very good; G—good; F—fair; P—Poor; VP—very poor.

15.13. FODDER CROPS.

Of six experiments laid down in 1945-46 two were discontinued in 1947 and one in 1948 (*See Annual Reports for those years*).

Hereunder is a summary of the results of two of the remaining three.

(a) VARIETAL AND MANURIAL EXPERIMENT.

Soil type—Fitches clay

Planted—23/10/45

Duration of experiment to last reaping—47 months.

Manurial treatment—2 cwt. ammonium nitrate per acre (reduced to 2 cwt. sulphate of ammonia in middle of 1948) after planting and after reapings as considered necessary.

Results—

	Times reaped.	Yield of fodder in tons per acre.		Total amount manure equivalent to cwt. S/A.	% loss between 1st and last reaping.	
		Nil.	N.		Nil.	N.
Elephant Grass	12	62.0	69.3	7.3	83	83
Guinea Grass	11	35.2	47.0	7.3	84	74
Guatemala Grass	11	46.2	53.3	6.7	47	31
Uba Cane	11	30.6	32.0	6.7	86	84

All the grasses responded to nitrogenous manure with gain in yield, but that from Uba cane was very small. As to whether gains were paying or not would depend on the price of manure and the value per ton placed on fodder grass.

(b) MANURIAL EXPERIMENT WITH GUINEA GRASS.

Soil type ... Fitches clay

Layout ... One 4 × 4 Latin Square

Planted ... 11/1/46

Spacing ... 3' × 2'

Duration of experiment to last reaping—44 months.

Manurial treatments per acre at each application—

1. Nil
2. 2 cwt. Sulphate of Ammonia
3. 1 cwt. Superphosphate
4. 1 cwt. Superphosphate plus 2 cwt. Sulphate of Ammonia

Manurial treatment applied after planting and 10 times after reaping *i.e.* 11 times in all.

No. of times reaped.	Nil.	N.	P.	N.P.
13	30.5	48.5	30.9	58.1

(c) SPACING TRIAL WITH ELEPHANT GRASS.

Errors were made in reaping due to closing in and unevenness following repeated cutting. The experiment was abandoned.

15.14. CATTLE.

Number and sexes as at 31st December, 1949.

Grade Holstein bull	1
Pure bred Red Poll bulls	2 (1 imported from England during 1949)
$\frac{3}{4}$ Red Poll $\times$ $\frac{1}{4}$ Senegal bulls	4
$\frac{1}{2}$ Red Poll $\times$ $\frac{1}{2}$ Senegal bulls	3
$\frac{1}{2}$ Red Poll $\times$ $\frac{1}{2}$ Senegal bull calves	3
$\frac{1}{3}$ Red Poll $\times$ $\frac{2}{3}$ Senegal bull calves	3
$\frac{1}{3}$ Red Poll $\times$ $\frac{2}{3}$ Senegal cows	23
$\frac{1}{2}$ Red Poll $\times$ $\frac{1}{2}$ Senegal heifers	7
$\frac{1}{3}$ Red Poll $\times$ $\frac{2}{3}$ Senegal heifers	13
$\frac{3}{4}$ Red Poll $\times$ $\frac{1}{4}$ Senegal heifer calves	7
$\frac{1}{2}$ Red Poll $\times$ $\frac{1}{2}$ Senegal heifer calves	4
	70

The $\frac{1}{2}$ Red Poll $\times$ $\frac{1}{2}$ Senegal herd was maintained in excellent condition.

Milk yields, however, were in some cases disappointing as compared with those in 1947-48. This may be due to the change over from hand milking to the use of a milking machine. Comparative figures are as follows:—

Name of cow.	1947-48.		1948-49.	
	No. of days in milk.	lb. milk produced.	No. of days in milk.	lb. milk produced.
June	...	...	483	7,323
Dame	...	...	332	7,721
Belle	270	6,094	280	4,301
Duchess	353	6,311	370	5,630
Princess	290	4,788	216	3,343
Anna	263	4,163	216	3,178
Star	360	6,825	260	3,357
Ellen*	...	...	102	1,184
Gloria†	344	3,824	...	...

*Suffered from mastitis.

†Milked once daily.

A Gascoigne 2-point unit was brought into regular use during the year—milking being done twice daily, 5 a.m. and 2.30 p.m. It gave very satisfactory results.

The $\frac{3}{4}$ Red Poll x $\frac{1}{4}$ Senegal lacks the size of the half breeds, but this may all be to the good as they should be cheaper to maintain. They appear to be standing the climatic conditions as well as the half breeds. Nothing is known as yet of their milking qualities. Three are due to calve late in 1950.

Two of the half bred milch cows, Dame and Ellen, suffered from mastitis. One of the pure bred bulls developed a large tumour in the neck. It was successfully lanced.

Two half bred bulls were shipped to the Agricultural Departments of Nevis and Montserrat. Seven bulls were sold locally—five halves and two three-quarters. Of the five halves, four were sold to selected peasants at much reduced prices on condition that they were kept at stud for at least four years—the animal to become the unconditional property of the peasant concerned only after he had lived up to the above condition and other simple stipulations embodied in an agreement signed by himself and the Agricultural Superintendent.

15.15. PEASANT STALL-FEEDING UNIT.

A cow in calf and later a cow and calf have been maintained from August 5th, 1948,—December 31st, 1949, solely on grass cut from a plot consisting of

Guinea Grass	.55 acres
Elephant Grass	.25 "
Guatemala Grass	.32 "
	1.12 "

The animals were kept in an enclosure about $\frac{1}{2}$ acre in size containing thatched wattle pens. They were fed in racks in the covered pens. During the day they were free to move about within the enclosure but they were confined in the pens at night. Bagasse and hay were used as bedding in the pens. During the year September 1948—August 1949, nine and a quarter ($9\frac{1}{4}$) tons of pen manure were collected.

The indications are that under the conditions obtaining during this project the cow and calf could have been maintained during the period on the output from less than one acre.

15.16. HORSES.

Number and sexes as at 31st December, 1949.

Pure bred stallions (Light Draught French Canadian)....	2
Pure bred brood mare „ „ „ „	1
Native brood mares	2
Pure bred colt	1
Pure bred filly	1
Half bred fillies	3
	10

The two imported Light Draught French Canadian stallions continued to keep in fine condition. The mare gave birth to a colt which has made good progress. She was returned to the stallion.

A young French Canadian stallion (Cemlon) was sold to the Agricultural Department, Dominica.

15.17. DONKEYS.

Number and sexes as at 31st December, 1949.

Pure bred American Jack	1
Half bred American Jack	1
Half bred American Jenny	1
Grade American Jenny	1
Three quarter bred Jack	2
Half bred Janets	2
	8

The pure bred Jack "Dan Kiger" kept in good condition. He was used on horses and donkeys.

One Jenny "Mary" gave birth to a colt sired by "Dan Kiger".

A grade Jack "Johnny", which had been loaned to the Agricultural Department, Montserrat, since 1947 was purchased by them. Another grade animal "Black Jack" was sold to the Agricultural Department, Nevis.

15.18. SHEEP.

Number and sexes as at 31st December, 1949.

Type.	Rams.	Ewes.	Ram lambs.	Ewe lambs.	Total.
Native ...	—	2	—	—	2
$\frac{1}{2}$ B.H.P.* ...	1	16	3	5	25
$\frac{3}{4}$ B.H.P. ...	1	15	12	19	47
$\frac{1}{16}$ B.H.P. ...	1	—	—	—	1
	3	33	15	24	75

*Black Head Persian.

The flock continued to thrive well and are in great demand throughout the island. Efforts are being made, however, to introduce new blood lines by importations from Africa.

Of the ewes that lambed 46.1% produced twins and 53.6% born were rams.

15.18 (a). GOATS.

Number and sexes as at 31st December, 1949.

British Alpine Buck	....	1
British Alpine Doe	....	1
Native Does	....	2
Half bred male kids	....	4
Half bred female kids	....	1
Native female kid	....	1
		—
		10
		—

The two native does purchased during 1948 kidded twice each during 1949. On the first occasion one had a single kid and the other a twin. On the second occasion both produced triplets, one having three rams and the other two ewes and one ram.

During the first lactation the kids were taken away from the mothers in the evening and the latter were milked in the morning. On the second occasion owing to the numbers of the kids the ewes were not milked at all.

A pair of high grade British Alpines were imported during the year. The doe arrived in milk and continued to give milk up to the end of the year.

LACTATION FIGURES.

<i>Name of Goat.</i>	<i>Period of Lactation.</i>	<i>No. of days in milk.</i>	<i>lbs. milk produced.</i>	<i>Remarks.</i>
Black and Brown (A)	19.4.49— 4.10.49	169	195½	Two kids
Blackie (A)	9.6.49—10.11.49	153	230½	One kid
Mariner (B)	16.5.49—31.12.49	230	1,510	Still in milk.
(A) Local.	(B) British Alpine.			

15.19. PIGS.

Number and Sexes as at 31st December, 1949.

Gilts (Berkshire)	...	2
Boar (")	...	1

These animals were imported from England in June.

15.19a. POULTRY.

Number and Sexes as at 31st December, 1949.

Cocks—New Hampshire Reds	...	4
Cocks—White Leghorns	...	2
Pullets—New Hampshire Reds	...	9
Pullets—White Leghorns	...	9
		24

The two small pure bred flocks were kept at free range and were most of the time in good health. The average number of laying hens was 18 (9 New Hampshire and 9 White Leghorn). These produced a total of 2,145 eggs during the year (1,041 New Hampshire and 1,104 White Leghorns).

Eight hundred and sixty six (866) New Hampshire and eight hundred and eleven (811) White Leghorn eggs were sold off the station for sitting purposes.

15.20. SUMMARY OF ANIMALS SOLD FROM THE CENTRAL EXPERIMENT STATION DURING 1949.

Cattle	...	9 bulls
Horses	...	1 stallion
Donkeys	...	2 jacks
Goats	...	2 rams, 1 wether
Sheep	...	1 ewe, 28 ram lambs, 5 ewe lambs, 1 wether.

15.21. STUD SERVICES TO OUTSIDE ANIMALS.

These are listed together with others under Section III.

15.22. HAYMAKING.

A portable mechanical baler purchased during the period gave satisfactory results. Twenty-two acres of Antigua hay grass (*Andropogon nodosus*) gave 1,500 bales of hay, i.e. about 40 tons.

Harvesting was delayed owing to wet weather, with the result that some of the hay bedded in; this prevented all from being cut by the mowing machine. Bales were stacked in the open. Unbaled hay made in 1948 and stacked in the open was in good condition at the end of 1949 except for the outer few inches on top and sides.

16. GREENCASTLE NURSERY AND FRUIT FARM.

Land usage as at the end of 1949:—

		<i>Approximate Acreage.</i>
<i>Orchards.</i>		
Grafted mangoes (bearing trees)	...	4.00
" " (young trees)	...	5.00
Citrus (bearing trees)	...	4.00
" (young trees)	...	2.50
Other Fruit (bearing trees)	...	.50
Pineapple Observation Plot	...	1.25
<i>Nurseries.</i>		
Ornamental & economic plants	...	1.50
<i>Multiplication Plots.</i>		
Cane	...	10.00
Fodder	...	1.00
Food crops	...	.50
Ornamental trees	...	.25
Teak trees	...	.50
Permanent manurial experiment	...	1.00
		32.00

16.1. ORCHARDS.

The mature citrus and mango trees fruited very sparingly having no doubt not yet recovered from the three dry years 1946-1948.

The young citrus orchard had to be heavily supplied and some supplying of young mangoes had also to be done. All the young trees made good growth during the year.

16.2. PINEAPPLE OBSERVATIONS.

Most plants made fair growth in the early stages but either died before fruiting or produced fruit which failed to mature. Soil conditions may be unsuitable.

16.3. NURSERIES AND MULTIPLICATION PLOTS.

(1) *Mangoes.* Stocks were in poor condition. Only 50 Julie Mangoes were successfully propagated.

(2) *Citrus.* Four hundred and five plants were successfully budded and established made up as follows:—

Washington Navel Orange	....	320
Marsh Grapefruit	....	50
Tangerine	....	20
King Orange	....	15

(3) *Avocado*. Thirty budded plants of the variety "Pollocks" were established.

(4) *Breadfruit*. Two hundred and sixty plants were grown from root cuttings.

Cane. New varieties from the Central Cane Breeding Station Barbados, are first planted and multiplied here before being put into observation plots and eventually field trials elsewhere.

Large plots of varieties recommended for commercial planting are also maintained here chiefly for distribution to the peasantry.

Fodder Crops. Plots of Elephant and Guatemala Grass are maintained to supply planting material as required.

Ornamental Trees and Shrubs. Work in this connection was expanded to meet increasing demands. (See "Distribution of Planting Material" under Section III).

17. SUGAR CANE INVESTIGATION.

This work, sponsored by the Antigua Sugar Cane Investigation Committee, is undertaken in collaboration with the Department of Agriculture. The Department provides the senior supervising staff and has laid down provisionally two long-term manurial experiments. It will be decided at a later date whether these will be continued. Observation plots and nurseries of new varieties are maintained. The bulk of the formal trials and observation plots are conducted on estates throughout the island.

The following formal trials were reaped during the crop season of 1949:—

	Plants.	1st R.	2nd R.
Variety Trials	10	6	4
Time of planting of Standard Varieties	2	4	...
Long-term Manurial Trials	1	...	2
Short-term Manurial Trials	...	2	...
"High" Nitrogen and Phosphate Trials	4	2	...
Spacing Interval Trials	...	...	3
	17	14	9

In addition seven observation plots were reaped in which the latest varieties were given preliminary tests against standard varieties. The object of this is to select, under local conditions, from a large number of new varieties received from Barbados, those which seem worthy of further trial and possible extension.

The results of the formal trials have been summarised and published by the Sugar Cane Investigation Committee in a report "Antigua

Experimental Scheme—Preliminary Study of Yield Data for Experiments Reaped in 1949 by P. E. Turner, E. R. H. Martin and L. A. Watkins" and these are being widely circulated.

17.1. The following recommendations are extracted from this publication:—

Soil Type.	Manures (cwt. p.a.)				Recommended Varieties (% of Total Area).						
	Plants.		Each Ratoon.		1948.				1949.		
	S/A.	Super*	S/A.	Super*	B 4098	B 37161	B 37172	B 34104	B 4098	B 37161	B 37172
Wetherell Clay ...	2	1	2	1	75	...	...	25	100	...	...
Fitches Clay ...	2	1	3	1	50	50	...	...	100	...	...
Blubber Valley Light Loam ...	3.	1	3	1	...	20	60	20	34†	33	33
Gunthorpe Clay ...	2	1	3	1	34	66	...	...	100	...	...
Tomlinson Clay ...	2	1	2	1	25	75	...	...	50	50	...
Otto Clay ...	2	1	3	1	66	34	...	...	100	...	...
Bendal Clay ...	3	1	3	1	75	...	25	...	80	...	20
Blubber Valley Heavy Loam ...	3.	1	3	1	50	...	50	...	50	...	50

*Superphosphate 18% water-soluble P_2O_5 .

†B4098 can be planted with advantage during the second half of September and during October on the Blubber Valley Light Loams.

NOTE.—If there are good rains in April or May, an extra 1 cwt. of S.A. per acre can be applied during these months to the young canes with advantage.

17.2. Of the experiments reaped in 1949, those being continued as ratoons were manured according to plan, and spring counts were taken. Routine work was carried out on all experiments for reaping in 1950.

17.3. A new scheme of experiments to be reaped as plants in 1951 was presented to the Sugar Cane Investigation Committee by Mr. P. E. Turner and was approved. This scheme includes:—

9 Variety Trials.

3 Time of Planting Trials

4 Manurial Trials with Sulphate of Ammonia

1 Trial with High Nitrogen and Phosphate

3 Trials with Potash

1 Long-term Manurial Trial.

Of the above, 6 Variety Trials, 3 Time of Planting, 3 Manurial Trials with Sulphate of Ammonia, 1 Long-Term experiment with "High" N and P and 2 Manurial Trials with potash was planted before the end of 1949.

Most of the remaining experiments will be planted early in 1950, but it is feared that suitable sites in Lindsay, Tomlinson and Bendal Clays will not be available.

Section III.

EXTENSION AND DEVELOPMENT WORK.

18. A. ANTIGUA.

For purposes of extension and developmental work the island is divided into six districts with six instructors and two senior Instructors resident in the areas for which they are responsible. One additional instructor is in charge of a mobile Soil Conservation Unit.

19. The duties of a District Instructor are at present as follows:—

(1) Measuring plots, putting in boundaries, preparing sketch maps of settlement areas (Government).

(2) Supervising repairs to settlement roads and work on buildings and water supplies.

(3) Issuing warning notices and eviction notices to bad farmers, rent defaulters, and other undesirable tenants.

(4) Managing Demonstration and Stud Centres, Nursery Plots, etc.

(5) Considering applications for credit, inspecting plots, estimating value of crop security, making recommendations on prescribed forms and checking work done (the majority of loans are issued in instalments on the basis of work done). This takes up most of an Instructor's time, but enables him to get into close contact with the people and to encourage good husbandry, soil conservation, etc.

(6) Preparing careful estimates of cane crops grown on Government Settlements for the Antigua Sugar Factory and submitting information periodically as to varieties, etc.

(7) Making rough estimates of areas under food within the district—twice yearly

(8) Soil conservation work.

(9) *Protection work. Forestry and Cotton.* Instructors are required to report all breaches to the Senior Protection Officer who takes legal action, and to aim at preventing breaches by suitable propaganda.

(10) *Cotton registration.* All growers are required by law to register with the nearest Cotton Officer (the District Instructor) who issues certificates of registration. The information given has to be recorded and should be checked before a vendor's licence is issued. Such a licence is necessary before seed cotton can be sold. In practice it is seldom possible to check on every grower.

(11) Acting as Honorary Secretary (without a vote) to any Settlement Committee or Committees in the District.

(12) Organising and supervising the marketing of peasants' canes and (where there are depôts) purchasing maize and seed cotton as required.

(13) Giving miscellaneous agricultural advice and acting as guide, and friend to all peasants in the district and cooperating with estates as required.

20. The work of the Land Settlement and Development Section of the Department has increased considerably during recent years both as regards quantity and scope without there being any corresponding increase in staff.

The Soulbury Commission which sat in 1948 recommended during 1949 in connection with Land Settlement that:—

The extension staff of the Department of Agriculture be placed on a permanent establishment;

The Land Settlement and Development Board have its own staff and that an officer qualified in estate management and surveying be appointed to that staff;

Officers be appointed to the Department of Agriculture to take charge of all soil conservation work and to organise the provision of credit;

Steps to be taken to give more responsibility to the land settlement committees with the eventual aim of establishing a cane farmers' association.

Plans were submitted aimed at implementing as far as is practicable these recommendations at an early date.

The extension work of the Department is not now, however, limited to settlements. During 1949 and in 1948 much attention was given to small cultivators elsewhere, but it was not possible for the limited staff to meet all legitimate demands.

21. LAND SETTLEMENT.

Given hereunder is a list of all the "Settlement" areas with which the Department of Agriculture and the Land Settlement and Development Board are concerned.

Settlements.	Total Area (Acres).	Total Arable* Acreage (Estimated).	Total Acreage Occupied.	No of Allotments.	Principal Feeder Villages or Town.
1. Clare Hall ...	226	226	226	126	Clare Hall, St. Johns St. Johnston's Villages
2. Skerrets ...	100	—	61	19	St. Johnston's Villages
3. Sawcolts ...	233	—	139	71	Sawcolts, Swetes
4. Wallings ...	430	—	138	49	Wallings, Sawcolts
Sub-Total A. ...	989	—	564	265	
5. Piccadilly ...	3,000 (approx).	—	776	495	English Harbour, Liberta, Falmouth, Bethesda
6. Matthews ...	729	476	409	157	All Saints, Swetes, Buckleys
7. Jonas ...	261	—	152	77	Freemans, All Saints, Pares
8. Greencastle (1) ...	544	—	397	98	Grays Farm, Grays Hill, Hamilton, St. Johns
Sub-Total B ...	4,534	—	1,734	827	
9. The Folly ...	22	15	15	15	Swetes, The Folly
10. Mannings ...	250	68	72	43	Freetown, Newfield
11. Sherriffs ...	240	—	—	†	
12. Indian Town ...	22	—	—	†	
Sub-Total C ...	534	—	87	58	
13. Coconut Hall ...	257	139	170	106	Parham, Seatons
14. Southern Settlements	1,712	500	394	137	Old Road, Urlings
15. Northern Settlements	518	454	422	217	Cedar Grove, St. Johns
16. Rooms ...	441	—	—	—	—
17. Comfort Hall (part of) ...	410	—	313	237	Willikies, Seatons
18. Brecknocks ...	Unsurveyed.	—	47	38	Sawcolts, Hamilton
19. Belvidere Greencastle (2) etc. ...	1,635	—	689	424	Grays Farm, Grays Hill, St. Johns
20. Orange Valley ...	707	200	239	137	Crab Hill, Johnson's Point, Bolans.
21. Glanvilles ...	256	177	142	92	Seatons.
Sub-Total D ...	5,936	—	2,416	1,388	
Grand Total ...	11,993	—	4,801	2,538	

*In the absence of a land classification survey estimates in some cases might be misleading and have been omitted.

†Used for communal grazing.

Settlements 1—8 are under freehold tenure and most of the land on 1—4 has already been alienated. The given number of allotments is that at the time of alienation.

Settlement 9—21 are under leasehold tenure.

Settlement area 21 was purchased during the year from the Antigua Syndicate Estates, Ltd.

All of these with the exception of The Folly, Mannings and Sheriffs and Brecknocks also Indian Town are owned by the Land Settlement and Development Board, a body corporate with executive powers defined by law. In addition to administering the properties which they own the Board is charged with the responsibility of administering all the unalienated settlements—the execution of work being done by the staff of the Agricultural Department.

21.1. SETTLEMENT BUILDINGS.

Houses for staff were maintained at Belvidere, Coconut Hall, Marble Hill, Piccadilly, Clare Hall, Rooms and Cades Bay and buildings for use as district marketing depôts at Cades Bay, Rooms, Clare Hall and Piccadilly. Two Community Halls are maintained at Coconut Hall and Cades Bay.

Minor repairs were done to these buildings as required.

21.2. WATER SUPPLIES.

Two dams conserved water at Piccadilly and wells were maintained at Coconut Hall, Rooms, and Orange Valley.

21.3. ROADS.

Minor repairs were done to numerous settlement roads and “barri-cades”.

21.4. TRACTOR PLOUGHING ON SETTLEMENTS.

267.41 acres were ploughed for 180 tenants as follows:—

	<i>Acres.</i>	<i>No. of tenants.</i>
Greencastle	66.56	52
Belvidere	76.12	60
Piccadilly	82.00	34
Coconut Hall and Glanvilles	42.73	34
	267.41	180

21.5. SETTLEMENT COMMITTEES.

Two new Committees were formed at Glanvilles and McKinnons bringing the total at the end of the year to nine. These Committees continue to be elected by settlers at general meetings and to function for a period of about one year in an advisory capacity to the Department.

Thirty-three meetings were held during the year.

22. IMPROVEMENT OF ESTATE AGRICULTURE.

A close liaison exists between the Department of Agriculture and most estates through the Sugar Cane Investigation Committee, the Antigua Cotton Growers Association and the Agricultural and Commercial Society.

A scheme for the rehabilitation of estates is the responsibility of a Committee appointed by His Honour the Administrator of which the Director of Agriculture, Leeward Islands, is Chairman, and the Agricultural Superintendent, Antigua, Secretary.

Owing to certain local restrictions no new applications for assistance were approved after 1947 and issues were limited to already approved projects. During 1949 only one issue was made to one party as follows:—

<i>Sub-Head.</i>	<i>Loan.</i>	<i>Grant.</i>	<i>Total</i>
Purchase of Implements	\$11,674.80	\$3,891.60	\$15,566.40

Issues to seven parties and repayments from the commencement of the Scheme up to the end of 1949 are as follows:

	<i>Sub-Head.</i>	<i>Loan.</i>	<i>Grant.</i>	<i>Total.</i>	<i>Repaid.</i>
(a)	Purchase of Implements	\$55,483.20	\$18,441.60	\$73,924.80	\$10,719.37
(b)	Assistance for Improvement	\$45,326.40	\$14,808.00	\$60,134.40	\$13,947.23
(c)	Transport Expansion	\$17,520.00	\$5,841.60	\$23,361.60	\$6,888.00
(d)	Livestock and Dairy	\$8,640.00	\$4,320.00	\$12,960.00	\$3,782.40

23. DISTRIBUTION OF PLANTING MATERIAL.

The following is a list of recorded sales and/or free distribution of plants and planting material from all departmental stations—*i.e.* Central Experiment Station, Greencastle Fruit Farm and Nursery, and District Stations:

Cane cuttings (recommended varieties)	207,140
Sweet Potato vine cuttings (Variety B. 44)	2,135,000
Fodder Grass cuttings (Elephant and Guatemala)	215,640
Vegetable Seedlings (chiefly onions, cabbage and tomato)	85,485
Fruit trees	311
Ornamental trees and shrubs	3,492

The above does not include the items listed in Section 11 under Central Experiment Station, Food Crops, much of which was used for planting purposes, neither does it include sales of seed from the Government Marketing Depôt referred to later under "Marketing"

24. CREDIT.

This service has increased steadily both in volume and scope during recent years. Arrangements exist whereby assistance for approved agricultural and allied purposes are given to industrious small farmers who offer adequate first security in the form of an acceptable cash crop. Most issues are in the form of short term loans, repayable within a period not exceeding eighteen months but some medium and long term loans are given chiefly to assist small farmers to settle on their holdings.

Loans are recommended on a prescribed form by field officers who also check up on the amount and quality of work done. Issues and collections are made by the Marketing Section.

Loans for general cultivation, tractor ploughing, etc., are issued (often in instalments) on the basis of specific tasks approved and supervised by an Agricultural Instructor. Fertilizer loans are given in kind and usually the greater portion of a housing loan is in the form of lumber, etc.

During the year a total of \$53,455.07 was issued on 3,267 occasions as against \$28,198.48 on 1,897 occasions in 1948. Issues in 1945 amounted to slightly over \$10,000.

That the system is working satisfactorily is evidenced by the fact that loans repaid during 1949 amounted to \$32,243.58 which is well in excess of the \$28,198.48 issued in the previous year.

Interest on loans is collected at the rate of half cent per dollar per month. Interest collected during the year was \$1,043.66.

This agricultural credit service now takes up a large proportion of the total time of the field as well as that of the clerical staff of the Marketing Section but as long as adequate supervision is maintained it serves as a cheap but effective means of stimulating farmers to adopt methods recommended or approved by the Department.

The existing volume of credit, together with the rest of the work, taxes the existing staff to the utmost. Any extension of these activities will require increased provision for supervision and direction.

25. MARKETING.

During 1945 the total amount paid out by the Marketing Section (exclusive of loan issues) to many hundreds of small producers for crops marketed and for seed, etc., purchased was approximately \$122,263. The corresponding figure for 1949 was \$865,123 (an increase of over 600%). It is estimated that the one million mark will be passed in 1950.

In 1945 this section was less than 1% self-supporting—total revenue expressed as a percentage of total expenses including allowances for rent, depreciation, personal emoluments, etc., was only about 0.8%. In subsequent years arrangements have been gradually introduced whereby reasonable charges have been made for services rendered. By 1946 this section was about 50% self-supporting and during 1949 total revenue substantially exceeded total expenses. No increase in the permanent establishment has been made since 1942. In spite of three temporary clerks for part of the year the staff during 1949 proved, on occasion, quite inadequate to deal with the volume of work in an eight hour day and a considerable amount of overtime work had to be done throughout the year (some overtime pay was granted only for a short while in December). The work has also greatly outgrown office accommodation and office work (payments to the general public, etc.) often had to be carried on under very cramped conditions.

25.1. CANE.

19,011 tons of cane were handled as compared with 10,079 tons in 1948.

The districts concerned, and the weights from each, are given in the following table.

	tons	cwt.	qrs.
Belvidere	6,453	9	2
Greencastle	4,715	15	3
Orange Valley	1,097	4	—
Matthews	2,491	18	1
Clare Hall	503	8	1
Jonas	1,469	18	2
Mill Hill & Follies	807	15	2
Marble Hill	759	6	2
Mannings	31	9	1
Sawcolts	398	4	1
Cades Bay	91	5	0
Golden Grove	87	—	—
Piccadilly	19	8	2
Coconut Hall	58	16	2
Rooms & Comfort Hall	26	16	3
	19,011	13	2

Payment in 1949 amounted to \$160,982.50.

Collective marketing with the use of a siding scale was carried on very successfully at Matthews. Owing to the small quantities involved and for other reasons the existing siding scales were not used at Marble Hill and Clare Hall.

25.2. COTTON.

878,572 lbs. of clean seed cotton (about $\frac{1}{3}$ of the island's crop) were handled by this section at four centres—3 in rural districts and one in St. Johns. A first payment of 16 cents per lb. clean seed cotton was made and after all expenses deducted a final payment of 6.292 cents was effected.

Stained seed cotton (28,563 lbs.) was purchased outright at 3 cents per lb.

A statement of income and expenditure as at December 31st, 1949, is as follows:—

	\$	\$
To Sale of Clean Cotton Lint	224,704.66	
Value of Stained Cotton Lint	2,159.30	
Sale of Cotton Seed	6,689.72	
Approx. value of Cotton Seed Meal	300.00	
Carried forward	233,853.68	

	\$	\$
Brought forward	... 233,853.68	
By first advance of Seed Cotton	...	141,464.73
Handling Charges	...	2,159.13
Shipping Expenses	...	522.40
Estimated Shipping Expenses on stained lint	...	64.00
Insurance	...	855.86
Rent of Buildings	....	490.00
Transportation	...	665.11
Export Duty and Cess	...	5,725.82
Ginning and Baling	...	12,564.78
Grading Fees	...	1,240.80
Purchase of Jute Bags	...	688.40
Sundries	...	391.03
Marketing Commission 5% of Gross Proceeds	...	11,692.68
Final payment on 878, 799 lbs. seed cotton at 6.292c. per lb.	...	55,294.03
Balance	...	34.91
	233,853.68	233,853.68

N.B.—Grading Fee is deducted from Receipts on Cotton Lint before this item is paid into Revenue.

25.3 (c) FRUIT, VEGETABLES, SEED AND INSECTICIDES.

The sub-section was kept functioning throughout the year with a minimum of staff and maintained certain essential services *e.g.* retailing of seeds, insecticides, etc. Small quantities of tomatoes were exported to Trinidad and St. Kitts. When conditions were suitable some retailing of local produce was done but most producers naturally prefer to bargain for higher prices elsewhere, only offering produce to the Department when the market is glutted.

During the year 40,132 lbs. of miscellaneous vegetables and grain (chiefly tomatoes and pumpkins) and 6,333 fruit (chiefly oranges, grapefruit and mangoes) were sold.

Direct revenue exceeded expenditure by \$500.60 as against \$147.24 in 1948 and \$53.22 in 1947.

The sale of imported garden seeds amounted to \$1,109.79 and insecticides to \$1,083.65.

56,943 lbs. of cotton seed and about 8,312 lbs. maize were sold for planting purposes (much of the latter appears to have been consumed directly) realizing a total of \$2,620.22.

25.4. CORN FACTORY.

49,142 lbs. of cob corn were shelled and 33,563 lbs. grain cracked at fixed rates per lb.

Direct revenue exceeded expenditure by \$579.21. This factory is operated by the Marketing Officer.

26. SOIL, WATER, AND FOREST CONSERVATION.

(a) *Soil and Water Conservation.*

A total of approximately 350 acres were serviced for the first time by the Department's Soil Conservation Unit—about 14 acres on estates and 336 acres on small-holdings. Most of the work on peasant holdings consisted of the laying down of earth bunds at 6' vertical intervals establishing close planting of Vetevier or Guinea Grass on these bunds and encouraging the cultivators to make their ordinary cultivation banks as far as possible parallel to these bunds. Most of the work on small holdings was paid for by Departmental funds.

In addition to that done by the Mobile Unit conservation work was carried out as part of the routine of district instructors. This consisted chiefly of the maintenance of work already done, and advice as to banking, etc., but some new work was also carried out as required.

There has been an increasing appreciation of the need for soil conservation within recent years and it is estimated that at the end of 1949 there were over 2,650 acres that were in some measure protected.

Banking parallel to the main contour bunds is being fairly well done but great difficulty is being experienced in getting the peasantry to maintain live material (of no immediate economic value) on the bunds.

(b) *Forest Conservation.*

There are very few acres of anything approaching true forest growth in the island. By long custom thick bush and anything denser is referred to as "forest". A "forestry" protection service was maintained. This consists of two Protection Officers (Forestry as well as Cotton Protection) and part time rangers as required. The object of the service is to prevent the denudation of steep slopes, consequent loss of soil and ground water, and the degradation of fertile soils on lower slopes by the admixture of poorer soils and toxic sub-soils brought down from bare slopes during heavy rains.

There were 53 convictions during the year for breaches of the "Forestry" Regulations. Fines varying from \$1.20 to \$5.00 were imposed. Breaches are, unfortunately, on the increase.

27. COTTON PROTECTION.

Two Protection Officers (*see* Forestry above) part time rangers and all field officers assist in this work. A close season was maintained from May 10th until August 31st.

During the year \$2,700 was spent on the destruction of wild cotton. About half of this amount was spent on the former U.S. Army Base which had been out of control during occupation years.

There were 27 convictions for breaches of the Cotton Protection Ordinance.

28. LIVESTOCK IMPROVEMENT.

Red Poll x Sengal herds are kept as stud at Cades Bay and Piccadilly.

"Large Black" boars were maintained at Cades Bay, Clare Hall and Rooms and a Duroc-Jersey at Piccadilly. The last mentioned was presented to the Department in 1947 by A. J. Garcia, Esq., of the Dantzler Lumber & Export Company, Tampa, Florida, through Messrs Brown and Company, Ltd.

A British Alpine buck was kept at Clare Hall and a Black Head Persian ram at Clare Hall.

All of the above mentioned animals are additional to those kept at the Central Experiment Station and referred to under Section II Central Experimental Station. Reference is made there also to four bulls which were sold at reduced prices to farmers on condition that they are maintained at stud for at least four years.

Following is a list of recorded services to animals outside the Department:—

Bull	98
Boar	68
Sheep	30
Goat	25
Stallion	14
Jack	37

29. DEMONSTRATION PLOTS, ETC.

Except for well maintained demonstrations at the Central Experiment Station formal Departmental demonstrations on Government owned plots were limited to fodder plots for the maintenance of stud and riding animals and for demonstrating the stall feeding of milch cows.

It is felt that the rather more elaborate demonstration plots than used to be maintained on Government land at Clare Hall, Piccadilly, etc., have not produced results in any way commensurate with the expenditure involved.

In future more stress will be placed on simple demonstrations on farmer's holdings.

Plant Nurseries.

In addition to Nurseries at the Central Experiment Station and Greencastle Farm, Nurseries for the provision of recommended varieties of cane were maintained at Piccadilly, Matthews, Orange Valley and Coconut Hall and Nurseries for the provision of vegetable seedlings at Piccadilly and Cades Bay.

30. INSTRUCTIONAL.

Of the five cadets taken on for training at the Central Experiment Station in August 1948 only three of them completed the twelve months course. Owing to uncertainty as to the provision of funds no new cadets were taken on.

In July and August an extensive two weeks course on "Agricultural Extension Work" was given at the Central Experiment Station to members of the Field Staff, Leeward Islands, by Mr. J. C. Hotchkiss, Assistant Agricultural Adviser, Colonial Development and Welfare. The course was once repeated so that only half of the personnel concerned was away from duty at any one time.

The course was very highly appreciated and indicates the pressing need for training of extension workers if anything like optimum results are to be obtained.

Two short educational pamphlets were issued during the year—"Higher Cotton Yields—Bigger Income" and "The Cash Value of Experimental Work".

Pamphlet No. 1 of 1947 entitled "An Enemy in our Midst" and dealing with the control of the Pink Boll-Worm was re-printed and widely distributed.

31. BOARDS, COMMITTEES, ETC.

During the year the Agricultural Superintendent served on the following:—

- As Chairman of the Land Settlement and Development Board
- " " Secondary Industries & Marketing Advisory Board
- " " Sugar Cess Rehabilitation Fund Committee
- " " a Committee to make recommendations re—
 1. comparative rates payable by the Antigua Sugar Factory to Government controlled Land Settlements or Groups for canes delivered;

2. conditions which will qualify such Settlements or Groups for the specified rates.

As Secretary of the Antigua Agricultural & Commercial Society.

„ „ Estate Rehabilitation Committee.

„ Secretary-Treasurer of the Antigua Cotton Growers Association

As a member of the Sugar Cane Investigation Committee.

During the year the Assistant Agricultural Superintendent served as Secretary of the Sugar Cane Investigation Committee and as Secretary of the Sugar Cess Rehabilitation Fund Committee.

(B)—BARBUDA.

32. The following are mainly extracts from the Acting Warden's report

“.....plant nurseries were established, Agricultural Meetings held, and Demonstration Plots established, as an incentive to the inhabitants.....”

32.1. DISTRIBUTION OF PLANTING MATERIAL.

“Onions	70,000
Tomatoes	1,000
Beet	700
Lettuce	60
Cauliflower	1,005”

32.2. MARKETING.

(See also Section I. Review of Agricultural Production.)

Seed cotton was purchased by the Warden and shipped to Antigua where it was handled by the Marketing Officer, Antigua.

32.3. LIVESTOCK IMPROVEMENT.

A stock farm is maintained for the benefit of the inhabitants. The Government owns and upkeepes the following stud animals:—

4 Pony Stallions
1 Jack for service to Mares
1 „ „ „ Donkeys
1 Foundation Bull
1 Ram

In this connexion pastures are kept clear of bush, water supplied by means of wells, paddocks and catching pens kept in good condition. During the year the Government maintained these services. The in

habitants enjoy the free use of the pastures, water supply and studs and pay a small animal licence for horses, cattle, donkeys and mules.

The following shows stud services for the year:—

Jack Dawson	208
Facetious	9
Starlight	11

32.4. AGRICULTURAL EXHIBITION.

A successful show was staged on February 28th.

Included among the judges were the Director of Agriculture and the Agricultural Superintendent.

Awards were made under fifty heads graded in twelve classes as follows:—

Horses, Mules, Asses, Cattle, Sheep, Goats, Poultry, Agricultural Produce, Village Handicraft, School-children's Handicraft, Gardens, Baby Show.

First and second prizes were given in the great majority of cases, but where the judges felt that a sufficiently high standard had not been reached, only one or no prize was awarded.

Section IV.

COLONIAL DEVELOPMENT AND WELFARE SCHEMES.

33. Schemes in operation during the year were as follows:—

Scheme D. 282. This provided for a free grant of £82,100 (\$394,080) over the period 1944-1949 for the Purchase of Land, Additions and Repairs to Buildings, the provision of Water Supplies and Roads, and Clearing and Surveying in connection with Land Settlement and Development Work to be administered by a Land Settlement and Development Board.

Expenditure during the year amounted to approximately \$16,578 and over the whole period to about \$353,300. A list of land purchases (Settlements 13 to 21) and an account of progress made is given under Section IV "Land Settlement," paragraphs.

34. Scheme 465. (1945-1949)

A. CENTRAL EXPERIMENT STATION.

This provided a free grant of £120,000 later modified to £110,000 (\$528,000) for the Establishment of a Central Experiment Station and Livestock Farm. Progress under the Scheme is reported under Section II "Central Experiment Station" (paragraphs 15—15.22).

Expenditure during 1949 was approximately \$75,097 and over the whole period about \$527,563.

B. STAFFING AND OTHER REQUIREMENTS OF THE DEPARTMENT OF AGRICULTURE.

An amount of £32,000 (\$153,600) £30,000 free grant and £2,000 loan was allocated to provide staff and funds for Land Settlement and General Extension and Development Work among the peasantry. This scheme is closely related Scheme D. 282.

Expenditure during 1949 was \$22,896 and over the whole period \$153,500. Progress is reported under Section III paragraphs 18-21.5, 23-32.

C. ESTATE REHABILITATION.

Allocations under this sub-scheme were as follows:—

	<i>Grant.</i>	<i>Loan.</i>	<i>Total</i>
	\$	\$	\$
Purchase of Implements and Machinery ...	24,000	72,000	96,000
Estate Improvement ...	24,000	72,000	96,000
Transport Extension ...	—	28,800	28,800
Purchase of Livestock and Dairy Equipment ...	11,200	22,400	33,600
	<u>59,200</u>	<u>195,200</u>	<u>254,400</u>

Progress under this Scheme is reported under Section III Extension and Development Work paragraph 22.

It is noteworthy that of the five-year period 1945-1949, rainfall in all except the last year was well below normal.

Section V.

SUMMARY OF AGRICULTURAL LEGISLATION CHANGES.

35. An Act No 28 of 1949 to make provision for the protection of prædial produce was passed during the year following the recommendations of a Committee appointed by the Antigua Agricultural and Commercial Society in connection with the prevalence of prædial larceny.

The Bill is in general designed to make it easier to control the activities of prædial thieves and to relieve the victims of prædial larceny.

Its most noteworthy clause is one empowering the "Senior Officer of the police force for the time being in charge of any Police Station with the consent of the owner of the plantation or land..... to accept" a sum of money not exceeding forty-eight dollars by way of compensation for the offence suspected to have been committed.

No other legislation directly affecting agriculture with the exception of ephemeral orders *re* cotton close season, etc., were enacted during 1949.

C. A. S. HYNAM.

Agricultural Superintendent.

APPENDIX I.
RAINFALL IN ANTIGUA.
1949 (48 Stations).

Place.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1. Antigua Sugar Factory ...	2.08	2.01	4.65	2.97	1.47	3.08	3.71	5.03	13.18	6.15	4.81	5.66	54.80
2. Betty's Hope ...	.95	1.44	2.73	2.00	.53	1.87	3.26	2.74	9.61	5.67	3.07	3.93	37.80
3. Blackmans ...	1.65	2.28	3.86	2.71	1.25	2.65	3.38	4.06	11.99	5.42	3.19	4.12	46.56
4. Blakes ...	2.47	2.98	3.24	4.37	.92	2.95	3.63	3.68	10.15	4.67	4.43	2.35	44.84
5. Blubber Valley ...	2.10	2.60	4.53	3.51	1.74	4.02	3.97	2.73	16.83	6.91	3.56	3.76	56.26
6. Burkes ...	1.77	2.84	4.16	3.63	1.93	3.61	4.35	4.10	12.15	7.03	3.62	2.19	51.38
7. Cassada Garden ...	1.01	2.03	4.07	2.57	1.20	2.54	2.26	2.77	12.13	6.78	3.24	2.89	43.44
8. Cedar Valley ...	1.51	2.07	4.97	2.50	1.55	2.72	1.95	2.85	10.15	5.33	2.99	3.60	42.19
9. Clare Hall ...	.35	1.20	5.05	3.59	—	3.35	2.60	3.52	16.45	9.51	4.60	5.55	55.77
10. The Cotton ...	1.58	2.13	5.04	2.25	1.44	2.58	3.17	3.02	9.88	6.14	3.09	4.33	44.65
11. Comfort Hall ...	1.60	2.13	5.71	3.23	1.09	2.31	3.35	2.75	11.51	7.50	2.57	2.65	46.40
12. Collins ...	1.45	2.29	4.79	2.72	1.22	2.42	3.87	4.01	10.76	6.35	3.65	4.28	47.81
13. Creek Side ...	1.51	1.96	5.80	2.98	1.35	2.96	3.75	3.19	13.60	6.57	2.15	3.13	48.95
14. Delaps ...	2.28	2.86	3.64	3.97	1.41	3.14	3.88	4.07	10.06	4.82	3.60	3.18	46.91
15. Donovans ...	1.83	1.84	3.95	2.60	1.53	2.53	2.46	3.80	.91	5.30	4.21	4.71	44.67
16. Duers (Diamond) ...	1.88	2.80	5.42	3.61	1.40	3.28	4.59	4.11	12.27	6.11	2.82	4.11	52.40
17. Dockyard ...	1.65	2.20	4.20	3.54	1.18	4.51	4.71	2.30	15.04	6.04	2.25	2.81	50.43
18. Five Islands ...	1.43	2.22	4.02	1.85	1.70	3.53	3.31	3.10	12.36	6.43	1.90	4.11	45.96
19. Fitches Creek ...	1.99	2.35	4.74	3.61	1.81	5.45	3.81	4.37	13.99	6.66	3.79	4.93	57.44
20. Ffryes ...	2.20	2.81	3.34	3.14	1.05	3.12	3.40	3.24	11.43	5.26	3.41	4.38	46.78
21. Friars Hill ...	1.50	2.07	5.52	3.54	1.98	3.35	2.10	6.66	10.92	5.85	2.59	2.98	49.06
22. Gaynors ...	1.71	2.24	4.26	2.93	1.42	3.00	2.84	2.95	13.33	6.32	2.16	2.71	46.09
23. Gilberts ...	1.42	2.74	4.34	2.80	1.31	2.10	3.06	3.27	9.78	6.64	3.04	3.27	43.77
24. Greencastle ...	2.29	3.29	5.78	3.24	1.79	3.73	3.82	5.93	14.96	7.90	3.84	4.25	60.82

APPENDIX I.
RAINFALL IN ANTIGUA—(Cont'd).
1949 (48 Stations).

Place.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
25. Langfords	1.65	2.06	5.22	2.41	1.50	2.57	1.21	3.42	18.95	7.73	2.90	3.57	51.19
26. Long Lane	1.81	2.14	3.87	2.00	1.20	2.19	3.51	3.99	10.20	5.82	3.30	3.92	43.95
27. Mercers Creek	1.42	2.74	4.34	2.80	1.31	2.10	3.06	3.27	8.01	6.63	3.37	3.03	42.08
28. Montpelier	2.14	3.75	3.56	3.86	1.41	3.74	4.04	3.31	12.55	6.52	4.45	3.72	58.01
29. Morris Loollys	2.23	2.73	2.90	4.37	.81	3.50	3.87	3.03	10.30	6.10	3.72	3.41	46.97
30. Cotton Station	1.40	2.15	5.80	3.01	2.13	2.86	2.50	3.42	14.51	5.90	2.61	3.26	49.55
31. New Division	2.16	2.72	5.16	2.99	1.80	4.28	4.54	3.48	16.38	7.37	3.60	6.23	60.71
32. North Sound	1.75	1.77	4.10	3.04	1.38	1.84	2.13	3.67	10.48	6.04	4.10	4.55	44.85
33. Pares & Cockranes	1.48	2.53	4.48	2.73	1.14	2.08	3.66	3.49	10.84	5.00	3.35	3.26	44.04
34. Parrys & Diamonds	1.88	2.80	5.42	3.61	1.40	3.28	4.59	4.11	12.27	6.11	2.82	4.11	52.40
35. Parham New Work	1.85	3.13	5.05	2.67	2.28	2.90	5.10	3.39	11.70	5.88	3.60	4.08	51.63
36. Parham Hill	1.58	1.71	4.46	2.23	1.57	2.23	2.71	2.88	9.35	5.74	3.23	3.64	41.33
37. Parham Lodge	2.15	2.83	4.85	1.83	1.60	2.21	3.51	3.12	10.89	6.58	3.68	4.58	47.83
38. Paynters	1.61	1.97	3.98	3.48	1.49	2.47	2.97	3.80	13.42	6.87	4.55	4.33	50.94
39. Piccadilly	1.60	2.78	3.22	3.62	1.47	4.37	6.36	4.95	12.82	6.90	2.87	3.56	54.52
40. Sandersons	2.94	3.45	7.08	3.50	1.97	3.53	5.13	4.44	13.29	6.28	3.42	3.87	57.91
41. St. Johns	1.63	2.29	5.12	4.02	1.82	2.92	3.12	3.00	10.58	5.81	3.91	3.36	47.38
42. Thibons	1.13	2.16	4.76	2.43	.98	3.55	1.70	2.95	15.30	6.85	2.62	3.67	48.10
43. Venons	2.14	2.2	4.27	2.77	1.65	2.09	3.62	3.30	10.31	5.01	4.19	4.08	45.33
44. Wallings Station	2.81	3.86	2.02	5.17	2.37	4.74	4.24	4.62	16.30	5.57	3.97	3.32	61.29
45. Willis Freemans	1.90	2.35	3.37	4.12	1.50	3.45	3.37	5.21	11.51	6.77	2.02	2.70	48.27
46. Yeptions	1.15	1.66	3.43	1.87	1.78	3.21	2.25	3.01	14.08	7.08	2.60	4.36	45.88
47. Yeamans	1.75	2.29	3.62	3.44	1.21	3.24	3.94	5.29	9.57	5.36	2.84	3.08	45.63
48. Yorks	1.45	1.89	4.38	3.07	1.52	3.29	3.84	2.65	13.72	6.20	3.28	4.59	49.91
Monthly mean 1949	1.73	2.40	4.42	3.11	1.45	3.09	3.46	3.67	12.31	6.28	3.35	3.78	49.03

APPENDIX II.

RAINFALL IN ANTIGUA.

The average Rainfall (Annual) for the 60 years previous to 1933 was 43.47 inches
Means 1933—1949.

No. of Stations.	Year.	Jan.	Feb.	March.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
59	1933	1.98	.92	1.07	2.52	4.69	2.60	5.28	1.87	8.40	3.04	6.18	2.85	41.50
60	1934	1.56	.64	2.05	.61	1.11	3.51	2.81	7.42	3.90	1.62	10.74	5.89	41.86
60	1935	1.33	1.15	.96	1.96	2.98	2.41	4.36	3.24	4.35	8.70	5.65	2.12	38.31
60	1936	1.65	1.26	.93	2.84	8.44	3.61	5.92	5.86	10.15	8.14	4.41	7.23	59.94
60	1937	8.54	3.07	.79	4.39	1.22	1.03	3.86	5.15	4.99	3.47	8.13	2.64	48.28
58	1938	2.07	.81	1.20	.61	1.06	11.58	3.10	6.39	3.00	3.95	8.41	2.67	44.75
59	1939	1.64	1.11	1.72	.25	.91	1.06	3.00	1.29	1.86	9.42	5.52	1.92	29.70
66	1940	3.41	3.09	2.13	2.41	4.31	2.71	2.15	3.04	3.04	2.41	6.79	1.88	37.37
66	1941	3.10	.71	1.63	2.10	12.77	3.49	3.02	4.07	5.25	2.95	8.06	2.22	49.37
56	1942	5.61	1.76	1.63	4.43	2.62	4.45	3.39	6.57	2.67	4.53	10.56	2.81	49.05
54	1943	3.99	1.91	1.63	1.01	7.70	5.44	1.96	6.84	3.40	8.69	4.17	2.34	49.08
54	1944	2.99	1.32	0.39	0.55	2.83	3.84	6.46	4.53	4.40	5.69	3.48	1.55	37.13
55	1945	1.40	2.44	1.44	1.59	3.97	2.42	3.38	4.62	6.57	7.59	1.88	3.60	40.90
51	1946	2.12	1.09	1.93	4.53	3.21	1.97	1.32	3.76	5.29	2.32	4.68	4.89	37.11
49	1947	3.62	0.50	0.61	0.94	3.77	1.50	2.57	1.68	7.12	4.46	1.00	.76	28.84
48	1948	2.44	0.93	1.51	0.90	2.55	3.98	1.86	2.28	4.64	7.02	5.28	3.92	36.41
48	1949	1.73	2.40	4.42	3.11	1.45	3.09	3.46	3.37	12.31	6.28	3.35	3.78	49.03
Monthly means 1933—1949 ...		2.84	1.44	1.42	2.05	3.81	3.40	3.40	4.23	5.38	5.31	5.79	3.12	42.19

APPENDIX III.

METEOROLOGICAL RECORDS AT THE COTTON STATION, FRIARS HILL, 1949.

	Temperature.		Humidity.		Sunshine.	
	Mean.	Max. Min.	A.M.	P.M.	Mean.	Hours.
January	80.1	70.0	80.1	81.4	80.8	8.4
February	80.1	69.6	79.2	73.6	76.4	7.8
March	81.0	70.9	79.1	71.1	75.1	7.4
April	82.8	72.3	76.3	70.0	73.1	9.3
May	83.7	74.3	75.3	71.4	73.4	10.1
June	84.6	74.6	76.1	73.7	74.3	—
July	85.5	75.8	78.1	72.8	75.4	—
August	86.6	76.7	78.6	73.2	75.9	—
September	84.9	75.2	84.9	81.8	83.5	—
October	83.8	85.0	85.5	83.6	84.5	6.2 (18 days)
November	83.1	73.8	82.5	78.6	80.6	9.4
December	81.3	71.4	82.9	72.1	80.0	7.5

APPENDIX IV.

SUGAR PRODUCTION—ANTIGUA.

Year.	Acres Reaped.	Tons (long) Grey Crystals.	Tons (Long) Muscovado.	Average Yield Tons cane p.a.	Tons cane per ton sugar.	Tons sugar per acre.
1939	12,023	19,226	101	18.6	7.25	2.57
1940	12,669	14,113	—	9.8	8.58	1.1
1941	11,374	17,584	166	12.9	8.23	1.55
1942	11,703	21,979	193	16.5	8.71	1.89
1943	9,187	21,867	208	18.7	7.79	2.39
1944	8,525	16,279	125	14.3	7.47	1.92
1945	8,823	20,663	72	16.8	7.15	2.35
1946	9,560	26,024	122	20.7	7.57	2.73
1947	10,267	22,746	100	17.5	7.87	2.22
1948	8,782	12,174	—	11.5	8.32	1.38
1949	8,494	18,263	75	18.2	8.43	2.15

APPENDIX V.

VALUE OF IMPORTS OF CERTAIN COMMODITIES INTO ANTIGUA IN HUNDREDS OF POUNDS STERLING (£ 00).

<i>Foodstuffs for Human Consumption.</i>	<i>1945—1948. Average.</i>	<i>1949.</i>
Flour	890	812
Pulses	6	8
Rice	222	297
Cornmeal (Maize)	264	258
Bread and Biscuits	34	70
Butter and Substitutes	140	355
Lard and Substitutes	84	162
Edible Oils	149	134
Preserved Milk	32	58
Cheese	32	70
Preserved Meat	202	121
Preserved Fish	305	377
Fruit and Vegetables	133	46
Coffee	12	17
Tea	10	27
Cocoa	18	29
Sugar	70	7
Total	2603	2848

APPENDIX VI.

PRINCIPAL EXPORTS FROM ANTIGUA IN HUNDREDS OF POUNDS STERLING (£ 00).

<i>Commodity.</i>	<i>1945—1948. Average.</i>	<i>1949.</i>
Sugar	3765	4223
Molasses	107	—
Rum	87	36
Cotton Lint	168	1537
Cotton Seed, Oil and Meal	—	34
Limes and Lime Products	—	8
Tomatoes	1	1
Coconut Products	—	—
Livestock	10	2
Hides and Skins	—	5
Other agricultural products*	—	16
	4138	5862

*Includes forest products, fruit, vegetables and ground provisions.

APPENDIX VII.

Approved Financial Estimates 1949.

VII. AGRICULTURE (1).

General.

1. PERSONAL EMOLUMENTS.

Numbers.

1	a.	Agricultural Superintendent (\$2640-120-3360)	...	\$ 3,240
1	b.	Assistant Agricultural Superintendent (\$2160-120-2640)	...	2,628
1	c.	Principal	...	1,680
1	d.	Senior Clerk	...	1,536
2	e.	Junior Assistants (\$960-48-1440)	...	2,266
3	f.	Junior Clerks	...	2,625
1	g.	P.O. Cl. II	...	552
	h.	Cost of Living Allowance	...	1,773
Total Personal Emoluments				16,300

OTHER CHARGES.

2.	Labour	...	...	5,492
3.	Materials and Tools	...	...	680
4.	Transport allowances	...	...	1,400
5.	Maintenance and upkeep of Lorry	...	...	1,440
6.	Distribution of Cotton Seed	...	...	48
7.	Contribution to Sugar Cane Breeding Station	...	...	1,676
8.	Printing, Binding, etc.	...	...	240
9.	Rent of Storehouse	...	...	240
10.	Books & Periodicals	...	...	240
11.	Inter-Island travelling expenses	...	...	480
12.	Purchase & Expenses Platform Scale	...	...	3,840
13.	Anti-tubercular measures	...	...	24
14.	Forest demarcation survey	...	...	24
15.	Food production	...	...	2,400
16.	Dipping tank	...	...	720
17.	Contingencies	...	...	336
18.	Insurance, Livestock & Vehicles	...	...	480
19.	Loans & Advances to Peasant Farmers	...	...	72,000
20.	Grant Land Settlement & Development Board	...	...	15,240
Total Other Charges				107,000
Total Head VII (1)				123,300

VII (2) AGRICULTURE.

MARKETING SECTION.

Numbers.

1	a.	Marketing Officer (\$2160-120-2400)	...	2,400
1	b.	Senior Clerk (Accountant)	...	1,536
6	c.	Junior Clerks	...	4,907
3	d.	Market Masters	...	240
	e.	Overtime Pay	...	480
	f.	Cost of Living Allowance	...	1,510
Total Personal Emoluments				11,073

VII (2) AGRICULTURE—(cont'd).

MARKETING SECTION—(cont'd).

OTHER CHARGES.

2.	Transport Allowance	...	...	576
3.	Depôts	...	...	288
4.	Contingencies	...	...	386
5.	Purchase of Engine	...	...	960
Total Other Charges				2,160
Total Head VII (2)				13,233
Total Head VII				136,523

XXVII. SELF-BALANCING ITEMS.

1.	Purchase and Marketing Peasants cotton	...	...	192,000
2.	" " " " canes	...	...	240,000
3.	" " " " fruit and vegetables	...	...	24,000
4.	Purchase of packing materials	...	...	2,400
5.	" and marketing of corn	...	...	39,600
6.	Upkeep of Corn Factory	...	...	4,800
7.	Purchase and marketing Peasants cotton, Barbuda	...	...	12,000
8.	Operations of Cotton Ginnery, Barbuda	...	...	1,440
9.	Purchase of Seeds	...	...	1,920
10.	Insecticides and Fertilizers	...	...	11,440
11.	Cotton Seed Farm	...	...	7,000
Total Head XXVII				536,600

XXVIII. DEVELOPMENT & WELFARE SCHEMES.

Land Settlement & Development Scheme D. 282.

1.	Purchase of Land	...	...	45,432
2.	Additions and Repairs to Buildings	...	...	7,503
3.	Water Supplies and Roads	...	...	11,093
4.	Surveys	...	...	5,602
Total Scheme D. 282				69,630

Agricultural Development Scheme D. 465.

1.	Central Experiment Station	...	...	69,022
2.	Staffing and other requirements	...	...	34,298
3.	Estate rehabilitation	...	...	68,277
Total Scheme D, 465				171,597

PART II (*b*).

REPORT

OF THE

Agricultural Department, St. Kitts,
Nevis and Anguilla

FOR THE

Year ended 31st December, 1949.



Section I

AGRICULTURE IN THE PRESIDENCY.

GENERAL CONDITIONS.

ST. KITTS. Weather conditions during the year were favourable. The rainfall for the first six months of the year was only one inch below average. Rainfall for March was considerably above normal but for May and June the precipitation was well below average. Rainfall during the second half of the year was 10 inches above average. Precipitation in September and December was 12 inches and 2 inches respectively above average while for October and November it was 2 inches below average. The mean rainfall of the island for 1949 is 63.71 inches, which is 9 inches higher than the mean rainfall for the period 1914-49.

In 1949 the average rainfall on 41 Stations was 62.15 in.

The mean rainfall for 36 years is 54.46 inches, so that the rainfall for the year 1949 is 7.69 inches above the mean.

MEAN MONTHLY RAINFALL.

	1949	1914-1949
	<i>Inches.</i>	<i>Inches.</i>
January	2.65	3.58
February	2.70	2.10
March	4.37	2.45
April	3.44	3.36
May	2.83	4.33
June	2.50	4.14
July	4.41	4.78
August	6.32	5.48
September	18.50	6.58
October	4.57	6.46
November	4.93	6.86
December	5.93	4.34
Annual Mean	62.15	54.46

The Meteorological Report for 1949 is given as an Appendix to this report.

NEVIS. Weather conditions were on the whole favourable during 1949. Comparative figures of the rainfall recorded in different districts of the island are given below.

Month.	Prospect.		Cades Bay.		New River.	
	Average previous 5 years.	1949.	Average previous 5 years.	1949.	Average previous 5 years.	1949.
January	4.42	3.41	2.92	2.28	2.29	2.36
February	2.90	3.40	1.62	2.29	1.41	1.32
March	1.63	3.25	1.21	2.73	1.08	2.82
April	2.20	2.69	1.67	3.30	1.22	3.76
May	4.83	2.10	4.29	2.83	4.32	2.05
June	3.63	3.92	3.51	2.40	2.75	2.58
July	4.43	5.22	3.04	4.50	2.49	2.75
August	5.70	5.23	5.29	6.65	3.24	3.89
September	6.25	16.50	5.88	15.44	5.77	11.33
October	6.12	3.96	4.71	6.46	5.65	3.78
November	5.07	4.87	4.52	6.24	4.35	4.10
December	4.14	4.38	3.13	4.44	3.06	2.29
Total	51.12	58.93	41.79	59.56	37.63	43.03

ANGUILLA. During 1949 weather conditions were very favourable in Anguilla and the rainfall was the highest recorded for the past nineteen years. The monthly rainfall at the Agriculture Station is given below.

Month.	Rainfall Inches	Days of rain.	Highest rainfall.
January	1.78	14	0.31 inch on 5th
February	1.63	8	0.35 " " 4th
March	3.35	12	1.56 " " 29th
April	1.55	9	0.36 " " 7th
May	1.25	8	0.25 " " 2nd
June	1.35	8	0.36 " " 27th
July	8.76	12	3.60 inches on the 9th
August	1.72	10	0.40 " " " 23rd
September	13.46	23	4.89 " " " 2nd
October	6.45	16	1.80 " " " 6th
November	5.65	18	1.83 " " " 10th
December	4.38	15	1.50 " " " 24th
Total	51.33	153	

The precipitation recorded at this station is 12 inches higher than the rainfall in 1948 and 10 inches higher than the average rainfall over a 15 year period.

In the three islands of the Presidency there were heavy falls of rain in September but no serious damage was done to cultivated areas. There were several storm warnings during the hurricane season but crops suffered no damage from any of the storms which were reported to be in the vicinity of the islands.

LABOUR. Labour conditions in St. Kitts were very much better than in 1948. On the estates and at the St. Kitts (Basseterre) Sugar Factory labourers worked well during the year and made it possible for the crop to be taken off in good time.

AGRICULTURAL INDUSTRIES.

SUGAR.

ST. KITTS. The mean rainfall of the island for 1948 was 50.24 inches which is 4 inches below the average of the past 35 years. The first half of the year was dry but moderately good rains fell during the second half of the year with an exceptionally wet December.

With just over 50 inches of rain in 1948 the island produced its third largest crop of 35,668 tons sugar. This output was exceeded in 1939 and 1941 when the average rainfall of the island for 1938 and 1940 was 58 and 54 inches respectively.

The harvesting of the crop was started on the 7th February but work had to be stopped on the 24th March owing to lack of storage space at the sugar factory. Storage difficulties arose as a result of a strike on the waterfront and the impossibility of making any sugar shipments. Harvesting was restarted on the 6th April and the crop was completed on the 27th July.

The St. Kitts (Basseterre) Sugar Factory purchased from growers in St. Kitts 292,160 tons of cane as compared with 264,956 tons in 1948 and 280,054 tons in 1947. The average yield of cane per acre was 27.73 tons as against 26.81 tons in 1948 and 26.13 tons in 1947. The average yield of sugar per acre was 3.31 tons as against 3.15 tons in 1948 and 3.10 tons in 1947. The sugar exported amounted to 33,781 tons valued at £890,185 as against 30,448 tons valued at

£819,041 in 1948. 1,067,807 gallons of vacuum pan molasses valued at £15,028 were exported as against 947,255 gallons valued at £21,344 in 1948. There was a substantial fall in the price of molasses during the year. The sugar was sold to the Ministry of Food at £24. 10s. per ton c.i.f. (£23. 12s. 3d. per ton f.o.b.) plus £2 15s. per ton to be held by the St. Kitts Government as special funds for Rehabilitation, Price Stabilization and Social Welfare.

The first payment for canes was 31s. 5.85d. per ton. The Contractors' share of the surplus was 3s. 8.57d. per ton making a total price of 35s. 2.42d. per ton of cane as against 34s. 11.25d. per ton in 1948. Outside suppliers were paid 32s. 6d. per ton of cane as against 32s. 3d. per ton in 1948 and 28s. 6d. per ton in 1947.

At the end of the year the 1950 crop was estimated at 40,000 tons of sugar.

The production for the past ten years is given in table I.

TABLE I.
SUGAR—ST. KITTS.

Year.	Average rain-fall previous year.	Acreage reaped.	Tons of cane produced.	Tons of cane per acre.	Tons of sugar produced.	Tons of sugar per acre.
	Inches.	Acres.			Grey crystals 96.	
1940	45.69	9,735	262,297	26.94	30,621	3.15
1941	54.37	10,178	290,210	28.51	37,186	3.60
1942	50.92	10,051	273,275	27.19	33,061	3.24
1943	81.53	9,063	262,933	29.01	32,161	3.52
1944	66.95	9,310	211,788	22.75	27,621	2.95
1945	53.02	8,581	225,029	26.22	28,543	3.32
1946	46.74	9,524	266,576	27.99	33,513	3.50
1947	37.95	10,718	280,054	26.13	34,357	3.10
1948	48.22	9,880	264,956	26.81	31,392	3.15
1949	50.24	10,534	292,160	27.73	35,667	3.31

NOTE:—In the calculation of sugar per acre the weight of sugar produced from canes supplied from Nevis has been excluded.

For the 1949 crop the variety B. 37161 occupied 93 per cent of the acreage harvested.

According to the Customs returns the exports of sugar, molasses and syrup during the period 1940—49 are as shown in Table II.

TABLE II.
~~On the Exports of Sugar and Molasses from the Island of Nevis~~
SUGAR EXPORTS AND VALUES.

Year.	Sugar.		Molasses.		Syrup.		Prices grey crystals per long ton f.o.b.		
	Exports Long tons.	Value £	Exports Imp. Gallons.	Value £	Exports Imp. Gallons.	Value £	£	s.	d.
1940	29,155	334,007	1,209	10	69,273	3,586	10	18	8
1941	34,961	441,674	967,657	8,240	60,709	2,655	11	10	0
1942	23,464	235,417	559,238	6,069	—	—	13	2	9
1943	36,011	510,961	477	4	—	—	13	15	3
1944	27,593	418,485	306,331	4,220	—	—	14	15	7
1945	26,666	459,394	1,535,286	33,672	—	—	16	19	6
1946	30,739	599,485	679,820	15,576	—	—	18	17	8
1947	31,631	756,560	574,786	13,490	—	—	20	15	6
1948	30,448	819,031	947,255	21,348	—	—	23	12	1
1949	33,781	918,110	1,067,807	15,023	—	—	23	12	3

The Report of the Soulbury Commission, which visited the island in August, 1948, was published at the end of the year. In the Report several recommendations are made relating to the sugar industry.

NEVIS. It is estimated that approximately 900 acres of cane were grown in Nevis for the 1949 crop. The crop was disposed of as follows:—

Purchased for shipment to St. Kitts	....	6,544 tons
Crushed at Hamilton sugar works (estimated)	....	530 „
Unreaped (estimated)	...	1,900 „
Total production		... 8,974 tons

No crushing was done at the New River sugar works in 1949 and at Hamilton it is estimated that 30 tons of muscovado sugar were manufactured for local consumption.

In Table III information relating to production, marketing and prices of canes is given for the past ten years.

TABLE III.

SUGAR CANE INDUSTRY—NEVIS.

Year.	CANES.				PRICES.			Weight of canes paid for by the St. Kitts factory.	Loss (Nevis scales to weighing station at Kitts.)
	Quantity purchased for shipment to St. Kitts.	Quantity purchased for the production of Fancy Molasses.	Quantity used for the production of Muscovado Sugar.	Total Production.	Paid by Messrs Wildy & Co. and Govt. for canes shipped to St. Kitts.	Paid for canes used in the production of Fancy Molasses.	Paid by St. Kitts Factory for Nevis canes (includes boatage allowance of 1/- per ton.)		
	tons.	tons.	tons.	tons.	s. d.	s. d.	s. d.		%
1940	1,601	3,144	900	5,645	11 10½	15 6	16 3	1,521	5.0
1941	4,594	2,787	400	8,781	13 9½	13 9	18 3	4,357	5.2
1942	3,849	—	900	4,749	13 4½	—	18 6	3,663	4.8
1943	2,546	—	750	3,296	14 6½	—	20 0	2,404	5.6
1944	1,349	—	600	1,949	16 7½	—	22 3	1,264	6.3
1945	484	—	540	1,024	19 1	—	25 6	447	7.6
1946	1,698	—	1,022	2,720	22 7	—	28 3	1,618	4.7
1947	6,510	—	1,544	8,054	28 6	—	29 6	6,177	5.1
1948	2,176	—	2,130	4,306	24 11½	—	33 3	1,998	8.2
1949	6,544	—	530	8,974*	25 11½	—	33 6	6,254	4.4

*1,900 tons unreaped.

Great difficulties were experienced in 1949 with the marketing of the cane crop. Some of the Nevis sailing boats, which transport canes from Nevis to St. Kitts, were worked very irregularly and the department received little co-operation from their owners. In addition much time was lost when shipments of sugar were being made in St. Kitts. For these reasons it was not possible to reap about 1,900 tons of canes.

All peasants who had 5 tons or more canes unreaped, received an advance of \$5.28 per ton from the Government.

The price paid for canes to growers was \$6.23 per ton at the scales. \$5.28 per ton was made as a first payment at the time of purchase and a final payment of 95 cents was made at the end of the season.

Handling of canes for shipment at Charlestown cost the grower 25 cents per ton and at Newcastle 38 cents per ton. The charge for truckage to the scales was 36 cents per ton mile. The charge for lighterage to St. Kitts was 84 cents per ton.

A charge of 1% on gross proceeds was made by Government for the marketing of the crop.

The cane crop for 1950 promises to be the largest for very many years and is estimated at 16,482 tons. With the present facilities the Marketing Department will have much difficulty in dealing with this large quantity of canes.

The pier at Newcastle is being repaired and lengthened by 30 ft. to enable a larger quantity of canes than usual being shipped from this point. However, it is doubtful whether this short extension of the pier will be of much assistance in increasing the quantity of canes to be shipped from Newcastle as, owing to the number of reefs surrounding the harbour, only boats owned in the district are willing to take the risks involved.

One of the boats, which normally worked at Newcastle, was lost last year. A new one is being built to replace this but it will not be ready for the 1950 crop.

It is hoped that both the Hamilton and New River sugar works will be in operation in 1950 to help to take off the large crop.

It does not appear that there is any likelihood of the scheme for the development of a syrup factory and rum distillery at the Cane Garden estate by a private concern materialising. This is unfortunate as a moderately large area of cane has been planted on an estate basis in the expectation of selling canes to the Cane Garden factory.

COTTON.

The production for the 1948-49 season is given in Table IV.

TABLE IV.
PRODUCTION 1948—49

Island.	Acreage.	Clean Lint.		Stained Lint.		Total Lint.		Yield per acre. lb.	
	acres.	Bales.	lb.	Bales.	lb.	Bales.	lb.	Clean.	Stain.
St. Kitts ...	1,169	421	183,839	124	47,250	545	231,089	157	40
Nevis ...	3,106	361	181,010	268	134,381	629	315,391	58	43
Anguilla ...	100	17	4,139	3	725	20	4,864	41	7
Total ...	4,375	799	368,988	395	182,356	1,194	551,344		

Production for the past ten years is shown in Table V.

TABLE V.

COTTON.

Year.	Area planted in Sea Island Cotton. Acres.				Total Lint production. lbs.				Yield of Lint per acre. lbs.		
	St. Kitts.	Nevis.	Anguilla.	Total.	St. Kitts.	Nevis.	Anguilla.	Total.	St. Kitts.	Nevis.	Anguilla.
1939-40	1,709	3,000	300	5,009	507,896	482,854	7,789	998,548	297	161	263
1940-41	1,400	4,000	150	5,550	282,774	558,371	18,974	860,119	202	140	126
1941-42	1,530	4,500	225	6,255	188,173	610,825	30,557	829,555	123	136	136
1942-43	1,100	2,573	200	3,873	223,150	200,148	17,224	440,522	203	80	86
1943-44	342	2,544	70	2,956	59,439	302,982	4,503	366,924	174	119	64
1944-45	1,032	2,680	70	3,782	257,831	314,818	4,611	577,260	250	117	66
1945-46	860	1,688	60	2,608	158,716	205,045	4,222	367,983	185	121	70
1946-47	956	1,319	30	2,305	194,038	101,224	1,972	297,234	203	77	66
1947-48	333	1,668	60	2,061	73,434	246,792	2,608	322,834	223	148	43
1948-49	1,169	3,106	100	4,375	231,089	315,391	4,864	551,344	179	101	48
Means ...	1,043	2,708	127	3,878	217,654	333,845	9,733	561,232	206	110	73

In St. Kitts there was an increase in the acreage under cotton and 1,169 acres were planted as against 333 acres for the 1948 crop. The acreage was the highest since 1943 and exceeded the acreage for that year by 69 acres. There was excellent weather for planting in March and the crop was well established by early April. Rainfall during May and June was below average and in consequence some of the later planted cotton was stunted. There were some excellent fields with heavy fruiting of the plants. Unfortunately the crop was almost ruined in many districts by the pink boll worm which heavily attacked the crop at the flowering stage. Attacks by the leaf worm (*Alabama argillacea*) were negligible. The pink bollworm is still a serious menace to the crop and for the past two or three seasons has greatly reduced the output of clean lint. In 1949 large quantities of cotton seed were being imported from Antigua for crushing from early on in the life of the crop and it is possible that these importations were partially responsible for the first infestations with pink boll worm. The total production of lint was 231,089 lbs of which 20 per cent. was stains. Production was much higher than in the previous year but the yield of lint per acre was much lower. The yield of clean lint was 157 lb. per acre as against 180 lb. for the previous crop. The clean lint was sold to the Raw Cotton Commission at 92 cents per lb. (f.o.b. St. Kitts) for Grade I to 86 cents per lb. for Grade IV and below, with reduced prices for intermediate grades. In December 424 bales (185,044 lbs. nett) of clean lint were shipped to the Raw Cotton Commission and 129 bales (49,661 lbs. nett) stained lint to the British Cotton Growing Association on consignment.

A few bales of this shipment were produced in 1948. The 1948 crop was exported early in the year.

In Nevis the planting season for the 1948—49 crop was 1st September to 15th October, 1948. Figures collected by the Department indicate that approximately 3,105 acres were planted by 2,172 growers as against 1,668 acres by 1,954 growers for the 1947—48 crop.

The crop was severely damaged by the pink bollworm which attacked the crop at the flowering stage. In consequence the percentage of stained cotton in the crop was very high. There were attacks of the leaf worm (*Alabama argillacea*) but the damage by this pest was not serious.

Production amounted to 181,010 lb. clean and 134,381 lb. stained lint as against 193,445 lb clean and 53,347 lb. stained lint for the previous crop. Stained cotton made up 42.6 per cent of the crop. The yield of lint per acre was 58 lb clean and 43 lb stained lint as against 116lb. and 32 lb. respectively for the 1947—48 crop.

The Marketing Department purchased 541,706 lb. clean seed cotton and 400,733 lb. stained seed cotton. The total payment for clean seed cotton was 22 cents per lb (paid in three instalments) and for stained seed cotton 4 cents per lb.

The clean lint was sold to the Raw Cotton Commission at 84 cents per lb. for Grade I and 75 cents for Grade IV and below with reduced prices for intermediate grades. All prices are f.o.b. Nevis. The average price obtained for clean lint marketed by Government on behalf of peasant growers was 78 cents per lb. 95,666 lbs of stained lint was shipped to the British Cotton Growing Association on consignment and was sold at 24 cents per lb. 64 bales (32,050 lb. nett) of stained lint remained unshipped at the end of the year. Labour difficulties prevented the export of this cotton to the United Kingdom. Six bales of stained lint were shipped to Dominica by a private individual.

The question of the most suitable planting season for cotton in Nevis was discussed during the year by the local Cotton Growers Association, whose members comprise only a very small number of the 2,000 cotton growers in the island. Some of the members of the Association were in favour of a change of the present September—October season to March—May planting. It was eventually agreed that there should be no change in the planting season for the 1949-50 crop and planting season was fixed by Government proclamation for 16th September to 15th October.

An additional sum of \$2,400.00 was provided by Government for the destruction of wild cotton which had been found growing in isolated

areas of the island and much attention was given by the Department to this work. Attention was also given to the destruction of cultivated cotton which had only been cut back by peasants for the close season before abandoning their plots.

There were 126 prosecutions of persons who had failed to destroy old cotton plants during the close season. Fine imposed by the Magistrate ranged from \$5.00 to \$9.60.

For the 1949-50 crop only 1,017 acres were planted as against 3,105 acres for the previous crop. The reduced acreage was the result of the prolonged uncertainty regarding the date of planting. A supply of seed was obtained from Montserrat for planting the crop. At the end of the year much of the cotton looked very promising and it is hoped that a higher percentage of clean lint will be obtained than for the previous crop.

In Anguilla the 1948-49 crop was planted in August-September, 1948. Pink Bollworm damage to the crop was again heavy. Production amounted to 4,139 lb. clean lint and 725 lb. stained lint as against 2,434 lb. clean lint and 174 lb. stained lint for the previous season.

It is estimated that 112 acres have been planted by 224 growers for the 1949-50 crop. At the end of the year some of the cotton plots looked promising but there was evidence of the presence of the pink bollworm.

According to the Customs returns the exports of cotton lint, cotton seed, cotton seed meal and cotton seed-oil during the period 1940-49 are as shown in Table VI.

TABLE VI.

COTTON—EXPORTS AND VALUES.

Year.	Cotton Lint.		Cotton Seed.		Cotton Seed Meal.		Cotton Seed Oil.		Cotton Lint (clean) f.o.b. per lb.
	Exports lb.	Value £	Exports tons.	Value £	Exports tons.	Value £	Exports gals.	Value £	
1940	906,385	87,808	50.	225	...	...	990	107	22½—23½d.
1941	869,476	70,202	84	394	31	183	1,290	193	...
1942	805,704	72,293	...	...	11	67	2,481	453	...
1943	287,611	25,424	...	...	14	80	559	122	22½—24d.
1944	492,316	47,564	...	...	13	96	665	168	...
1945	593,657	58,347	...	...	105	616	940	284	...
1946	269,477	17,113	2	75	6	47	2,624	779	19—24d.
1947	462,015	48,240	...	...	10	35	124	27	27—28d.
1948	246,468	30,801	...	...	12	133	135	51	34—39d.
1949	591,179	78,730	...	...	32½	273	1,933	689	37½—46d.

COCONUTS.

A small amount of sun-dried copra is made in Nevis on two estates. One estate uses trays on wheels and a shed where the trays can be protected in unsuitable weather, while the other estate dries the copra on the galvanized-iron roof of a shed. The copra is exported to Barbados. During the year a number of nuts were also exported.

The quantity of copra and the number of nuts, with the countries to which they were exported, are given below.

88,159 lb. copra to Barbados

19,400 lb. dry nuts to Montserrat

2,000 lb. dry nuts to Antigua

800 lb. dry nuts to British Virgin Islands (for planting)

672 lb. water nut to St. Eustatius.

FOOD PRODUCTION.

In St. Kitts the planting of food crops on the lower lands of estates has continued to be controlled by notices issued under the provisions of the Vegetable Production (Defence) Control Order, 1942, and estates were again required to plant and cultivate vegetables to the extent of 20 per cent of their total sugar cane acreage.

The supply of ground provisions was fairly good throughout the year. Early in the year locally grown onions, cabbages and tomatoes were plentiful. Some estates grew small acreages of green vegetables. The pigeon pea crop was not as good as in 1948.

The Department purchased 14,965 lbs. cob corn from estates and 1,340 lb. shelled corn from the Marketing Department in Nevis during 1949 and in late December, 1948. During 1949 10,020 lbs. cracked corn and 452 lbs. second quality meal were sold.

At the end of the year Government guaranteed to purchase from growers in the Presidency any maize produced at \$4.00 per 100 lbs. on the cob.

In Nevis locally grown foodstuffs were in fair supply during the greater part of the year and after the rains in September they were plentiful.

In Anguilla there were satisfactory crops of pigeon peas, sweet potatoes, guinea corn, maize and beans. Small acreages of yams, cassava and green vegetables were planted.

LIVESTOCK.

In St. Kitts little interest is being taken by the owners of estates in livestock and there was further development of mechanization during the year.

In Nevis the favourable weather during the year enabled the livestock on the island to be maintained in good condition. There were no outbreaks of any contagious or infectious disease.

Livestock are not as plentiful in Nevis as in former years as several large estates which were used for the grazing of livestock were given up on the death of their owners. Also there is no longer a demand for working oxen for the St. Kitts estates. There is a growing demand for animals for slaughter.

At Maddens estate, which is owned by the Government, a start has been made with plans for the raising of livestock on a moderately large scale and a private individual has recently started a stock estate. It is hoped that in a few years time the present shortage of livestock will not be so acute.

The following stud animals were imported by Government:—

One grade Sahiwal bull from Trinidad

One grade Red Poll bull from Antigua

One Jack from Antigua

One pair grade Black Head Persian sheep from Antigua.

Many animals are shipped to St. Kitts each year for slaughter but no record is available of the number of animals which are sold to butchers in St. Kitts. The number of animals slaughtered at two markets in St. Kitts and Nevis during the year are as follows:—

	<i>St. Kitts.</i>	<i>Nevis.</i>
Cattle	723	230
Sheep	1,751	898
Goats	1,176	1,234
Pigs	490	474
Totals	4,140	2,836

A large number of animals are slaughtered for food outside of the markets in the country districts of both islands.

The following figures show the number of livestock exported from Nevis during the year:—

	<i>Trinidad.</i>	<i>Barbados.</i>	<i>Antigua.</i>	<i>Montserrat.</i>	<i>Totals.</i>
Mules	65	...	...	1	66
Horses	20	4	...	...	24
Donkeys	5	6	...	...	11
Cattle	16	4	20	...	40
Sheep	10	...	9	...	19
Pigs	...	...	1	...	1
Goats	...	...	3	...	3
					164

In Anguilla conditions were very favourable throughout the year for the maintenance of livestock. 757 sheep, 290 goats and 11 cattle were exported to places outside of the Presidency. Very good prices were obtained in St. Martin for livestock and peasants were able to do a small but lucrative business.

Section II.

WORK OF THE DEPARTMENT OF AGRICULTURE.

INVESTIGATIONAL WORK.

Sugar Cane.

Experimental work with the sugar cane crop was continued as in previous years and was carried out in co-operation with St. Kitts Sugar Association Limited and under the direction of Mr. P. E. Turner, O.B.E., M.Sc., F.R.I.C., Sugar Agronomist on the Staff of the Comptroller for Development and Welfare in the West Indies.

23 varietal, 8 spacing and 4 manurial experiments were reaped during the year under the supervision of officers of the department. At the end of the year the printing of the report on the results of these experiments had not yet been completed.

The following is a summary of the more important conclusions which have been drawn from the results of these experiments.

VARIETIES.

Varieties of the B33', B34', B35', B37', B38', B40', B41' and B43' series have been under comparison with the standard variety B.37161, which occupied 93 per cent. of the harvested area in 1949.

B33' series.

B.3337 has given good yields of plant and ratoon cane, but juice of inferior quality in zones of intermediate and high rainfall. It is not a variety suitable for general use, but, in view of its capacity to give satisfactory ratoon yields under difficult conditions, it may be planted with advantage on steep hillsides where cane ripens rapidly but ratoons poorly.

B34' series.

B.3439 a former standard variety, has again been found inferior to *B.37161* on the drier lower lands.

B.34104 has given larger yields of plant and ratoon cane and sugar than the standard variety *B.37161* on the wetter upper lands and it is recommended that *B.34104* should be planted on about half these lands. Occasional fields may be planted in the middle lands of intermediate and high rainfall and the upper lands of intermediate rainfall. *B.34104* should be confined to the deeper soils of these areas.

B35' series.

B.35187 has again been found to give good plant yields but unsatisfactory ratoon yields on the middle and upper lands of high rainfall.

B37' series.

B.37172 has given inferior plant and ratoon yields to *B.37161* on the drier and wetter lower lands and the middle lands of intermediate rainfall.

B38' series.

B.38212 has given inferior yields of plant and ratoon cane and sugar to *B.37161* in all rainfall zones of the lower lands. Its performance on the wetter middle lands, although better, has not been good enough to justify its use as a commercial variety.

B40' series.

B.4098 has generally given larger plant and ratoon yields than *B.37161*, particularly in areas of intermediate and high rainfall, provided that the plants do not uproot. By contrast with *B.37161*, uprooting of *B.4098* is usually followed by death of the cane. *B.4098* cannot be recommended as a commercial variety because of the large proportion of experiments in which uprooting has occurred.

B41' series.

B.41211 has given larger yields of plant cane ratoon cane and sugar than both *B.37161* and *B.4098* (except in one experiment in which

much of the cane was eaten by labourers) in all rainfall zones of the lower lands, and it is recommended that 20 per cent. of the ploughed area of the lower lands should be planting in this variety. B.41211 has also given promising yields in the middle and upper lands, and occasional fields in all rainfall zones of these lands should be planted with this variety.

It has been found in Barbados that B.41211 should not be reaped until the leaves begin to turn yellow, and that the reaping of plant cane should be completed within three weeks of this time otherwise the cane begins to rot. The ratoons appear to ripen later than the plants and reaping may be spread over a somewhat longer period.

B.41227 has shown much promise as plant cane on the middle lands of high rainfall, and the upper lands of intermediate and high rainfall. It is recommended that nurseries of B.41227 should be planted in these areas.

In the wet areas of Barbados B.41227 arrows profusely and the canes which have arrowed tend to rot. A watch should be kept on this character in the nurseries.

B.4110, B.4145 and B.41228 have given yields inferior to the other varieties under trial.

B43/ series.

B. 4362 has shown much promise as plant cane on the lower and middle lands. It has given juice of high quality in all experiments and appears to be the most promising variety of the B43/ series. Nurseries are recommended in all rainfall zones of the lower, middle and upper lands.

B43229 and B43235 have performed poorly as plants in zones of dry, intermediate and high rainfall.

B. 43330 has given inferior plant yield to B. 41211 in the drier lower lands.

B. 43337 and B. 43391 have given inferior yields of plant cane and sugar to B. 37161, B. 41211, B. 41227 or B. 4362 on lower lands of dry and intermediate rainfall. B. 43391 has given greatly inferior yields of plant cane and sugar to B. 41227 on the upper lands of high rainfall.

RECOMMENDATIONS FOR PLANTING 1949.

Ecological area.		Recommended varieties (per cent of area to be replanted)				
Elevation.	Rainfall.	B.37161	B.41211	B.34104	B.41227	B.4362
Lower lands	Low	80	20	—	—	Nurseries
	Intermedi- ate	80	20	—	—	"
	High	80	20	—	—	"
Middle lands	Low	95	5	—	—	Nurseries
	Intermedi- ate	90	5	5	—	"
	High	90	5	5	Nurseries	"
Upper lands	Low	95	5	—	—	Nurseries
	Intermedi- ate	90	5	5	Nurseries	"
	High	50	5	45	"	"

SPACING INTERVAL.

Experiments are under way to determine whether the distance between the rows of cane can safely be widened to $5\frac{1}{2}$ feet to permit mechanised weeding of the plant crop. The variety of cane is B. 37161.

LOWER LANDS. The evidence at present available indicates that the distance between the rows can be widened to $5\frac{1}{2}$ feet without loss in yield of plant cane, provided that in the drier areas the intervals between the stools in the row is not less than 4 feet and that in the wetter areas continuous planting is practised in the row.

MIDDLE LANDS. More experimental evidence is needed before conclusions can be drawn.

MANURES.

HIGH NITROGEN AND PHOSPHATE.

On the recommendation of Professor F. HARDY, the effects on yield of plant cane and sugar of dressings to the acre of sulphate of ammonia up to 8 cwts. and superphosphate up to 8 cwts. have been under measure on unpenmanured areas of the wetter upper lands. Basal dressings of potash and limestone were applied to all the experimental areas.

Only small and doubtful gains in yield have resulted from the use of dressings of nitrogen and phosphate heavier than the standard dressings. The heavier dressings appear to have depressed juice quality.

LONG-TERM MANURIAL EXPERIMENT.

This experiment is designed to compare, over a period of years, the gains which result from dressings of pen manure with and without applied sulphate of ammonia and the complete artificials with and without a surface mulch of megass. Three crops of plants and five crops of ratoons, *i.e.* eight successive crops in all, have been reaped from the experimental area which is situated in the drier lower lands.

No gain of plant cane has resulted from applying sulphate of ammonia in addition to pen manure. Application of 3 cwts. sulphate of ammonia to each ratoon on the plots penmanured as plant cane has given rise to a total gain of 32.27 tons cane over the five ratoon crops or 6.45 tons cane per ratoon crop.

The total yield of the three crops of plants on the plots dressed with pen manure is 3.06 tons larger than on the plots dressed with complete artificials, but 8.95 tons cane smaller than on the plots dressed with complete artificials and mulched with megass. The residual effects of the mulch on the yield of ratoons are negligible.

The plots dressed with artificials show no ill effects from long-term treatment with these manures.

NEW VARIETIES RECEIVED FROM THE B.W.I. CENTRAL SUGAR CANE BREEDING STATION AT BARBADOS.

On the 13th October, 1949, 3 to 5 cuttings of the following varieties of the B47¹ series were received from the Central Sugar Cane Breeding Station:—314, 46, 47, 217, 81, 214, 379, 44, 258, 216, 88, 147, 135, 419, 38, 179, 151, 397 and 380. The first multiplication of these varieties is being carried out at the Experimental Station at La Guerite.

DISTRIBUTION OF CANE VARIETIES IN CULTIVATION.

In Table VII is given the distribution for crops harvested during the year 1930 and for the period 1942 to 1949. The figures are percentages of the total acreage harvested.

TABLE VII.

Variety.	Crop Year.								
	1930.	1942.	1943.	1944.	1945.	1946.	1947.	1948.	1949.
B. 37161	—	—	0.07	5.63	30.80	56.96	73.04	84.69	92.93
B. 34104	—	—	—	0.45	2.10	7.74	8.34	4.76	3.28
B. 3439	—	18.24	25.80	26.29	18.05	6.02	4.86	2.69	0.12
B. 35187	—	—	0.40	2.14	5.55	7.70	4.63	1.14	0.52
B. 2935	—	61.46	54.68	47.57	26.29	9.70	2.58	0.61	0.31
B. H. 12 (12)	69.50	17.64	17.00	15.70	12.23	6.98	2.41	1.21	—
C. 12/4	17.40	—	—	—	—	—	—	—	—
B. 4098	—	—	—	—	—	0.10	0.70	1.93	0.46
B. 41211	—	—	—	—	—	—	0.01	0.31	0.38
B. 38212	—	—	—	—	—	0.05	—	0.11	0.06
B. 3337	—	—	—	—	—	—	—	—	0.06
Fixed	—	1.30	0.44	1.03	4.45	4.52	3.47	2.55	1.85

The figures in the distribution table show that there has been further increase in the acreage under B.37161. Returns from the estates at the end of the year show that 94 per cent. of the acreage to be harvested for the 1950 crop is under this variety.

COTTON SEED MULTIPLICATION.

In St. Kitts the first multiplication of Pedigree seed from Montserrat was carried out as in former years on 7 acres of land at La Guerite. The total yield of lint obtained was 200 lb. per acre (150 lb. clean lint). 1500 lb. hand picked seed was obtained for the second multiplication on estates in 1950.

In Nevis 12 acres were planted at the New River settlement with pedigree seed from Montserrat. The crop was seriously affected by the very high winds in December and January but pink bollworm infestation appears to be much less than in the previous season.

COTTON VARIETAL TRIAL.

A varietal trial with 8 Sea Island strains was laid down at the Prospect Experimental Station. The lay-out consisted of six randomised blocks and the details to be followed in the planting and reaping of the experimental plots were supplied by the Cotton Officer at Antigua.

PROCESSING PLANTS OPERATED UNDER THE SUPERVISION OF THE DEPARTMENT.

Only 10,415 lb. cob corn and 1,340 lb. shelled corn were purchased at the cornmeal plant at La Guerite during the year. 10,020 lb. cracked corn and 452 lb. second quality meal were sold. Some of the cracked corn was prepared from corn purchased in late December, 1948.

In Nevis 10,092 lb. cornmeal was prepared for peasants at the corn mill on the Hardtimes settlement. 251 lb. corn was also cracked for stock feed. A charge of $1\frac{1}{2}$ cents per lb is made for crushing cornmeal and 1 cent per lb. for cracking corn.

The muscovado works at the New River settlement in Nevis was not operated in 1949 as the chimney had not been replaced in time for the crop. About 500 tons of canes were crushed at the Hamilton works and 30 tons muscovado sugar manufactured.

EXTENSION WORK.

In July and August the Agricultural Assistant and all Agricultural Instructors in the Presidency attended a two week's course on extension methods at the Central Experiment Station at Antigua. The course was

held under the direction of Mr. Hotchkiss, Adviser on Agricultural Education on the staff of the Comptroller for Development and Welfare in the West Indies. Most of the officers who attended the course appear to have derived some benefit from it,

During the year the Agricultural Assistant was engaged entirely on sugar cane experimental work and the Agricultural Instructors carried out work similar to that which is described in some detail in the 1948 report.

MARKETING AND CREDIT FACILITIES.

There is no marketing department in St. Kitts and the cane crop of the allottees on Government land settlement estates is marketed by the agricultural instructors assisted by the rangers. These officers make the necessary arrangements for the cutting, haulage and packing on the factory's trucks. Credit facilities for manures, agricultural tools and planting material are also arranged by the instructors. The senior instructor is responsible for keeping the ledgers in connection with marketing and credit transactions on the settlements.

For the 1949 season 5,417 tons of cane were marketed for the allottees of the Fahies, Sadlers and Harris settlements. The total amount received for the cane crop of the three settlements was \$45,762.00 and the amount which was received by allottees for canes put at the factory siding and packed in railway truck was \$33,798.90. A statement of receipts and expenditure is published as an appendix to this report.

In Nevis the Marketing Department marketed cotton, sugar cane and maize for peasant cultivators and provided credit facilities for insecticides, artificial manures and planting material. Cash loans up to £3 for cane cultivation were granted to approved allottees on Government settlements.

The total receipts from sales of clean and stained cotton lint and cotton seed amounted to \$160,457.56 and marketing expenses to \$25,569.40. Statements of receipts and expenditure in connection with the marketing of clean and stained cotton are published as appendices to this report.

The Marketing Officer is also responsible for the operation of the Government ginnery. For the 1949 season 181,010 lbs. clean lint and 134,381 lbs. stained lint were ginned and baled. Receipts amounted to \$12,607.25 and expenditure (excluding cost of management, supervision and depreciation charges) to \$8,309.36.

A corn mill is operated on the Hardtimes settlement for grinding corn for peasant growers.

Two muscovado plants are operated under the supervision of agricultural instructors at the Hamilton and New River settlements. The muscovado sugar is used for local consumption.

SOIL AND FOREST CONSERVATION.

In St. Kitts on Government land settlements contour bunds which had been damaged by livestock and by bad cultivation were repaired. 21,794 feet of permanent bunds of khus khus grass were established on the Fahies and Sadlers settlements. During the heavy rains in September there was no damage to cultivated areas on the settlements. Generally peasant cultivators are paying more attention to contour cultivation and in consequence there is less soil erosion on the upper lands which are planted to food crops.

In Nevis stone and grass bunds on the settlements were maintained and storm drains were cleaned.

In both St. Kitts and Nevis the protection of the forests was satisfactorily maintained during the year. In Nevis 36 permits were issued for the felling of trees and 96 permits for the burning of charcoal and there were 25 prosecutions for offences against the Forestry Regulations.

LAND SETTLEMENT.

In the 1948 report an account was given in some detail of the development of the three Government land settlement estates in St. Kitts. During the year work on the settlements was continued on the same lines. No funds have yet been made available for building cottages for allottees on the lower lands of Fahies, Sadlers and Harris settlements.

Details of the Government land settlement estates in Nevis are given in the 1948 report. The amount of indebtedness to Government on these estates for rents and pasturage dues was £781 12. 10. at the end of the year as against £1,081. 9. 3½ at the end of 1948. The cultivation and care of crops by the tenants on these settlements leave much to be desired.

In Anguilla Landsome estate was acquired compulsorily by Government for land settlement purposes. The estate comprises about 160 acres. It is expected that 3 acre allotments will be rented to peasant cultivators early in 1950.

STUD ANIMALS ON GOVERNMENT SETTLEMENTS.

One $\frac{3}{4}$ Holstein-Zebu bull and one $\frac{1}{2}$ bred Holstein-Zebu were on service at the settlements in St. Kitts for a part of the year. The bred was sold for meat early in the year. This animal will be replaced

y a half-bred bull from the Bayfords farm early in 1950. Two pure red Berkshire boars were also on service. The number of services by these animals during the year is shown below.

Bulls	...	22
Boars	...	53

NEVIS. The French-Canadian stallion, which was stationed at the Hamilton settlement, was sent to the Government Farm at Bayfords and a half-bred stallion at Maddens was used at stud during the year. The number of services by Government stud animals during the year is shown below.

6 Bulls	...	234
3 Ram sheep	...	45
2 Bucks	...	42
2 Boars	...	16
2 Jacks	...	25
1 Stallion	...	6

A half-bred Sahiwal bull has been imported from Trinidad and a half-bred Red-poll Senegal bull, a half-bred jack and a pair of Black Head Persian sheep ($\frac{3}{4}$ -bred) from the Central Experimental Station at Antigua.

It was decided to reduce the number of horses on the Maddens settlement and the following animals were sold: 3 mares, 2 fillies, 1 colt and a foal. At the same time four steers and two grade Holstein heifers were sold. Good prices were obtained for these animals.

In addition to the animals at stud on the various settlements Government has two small herds of Zebu cows and heifers at Low Ground and Maddens. These are made up as follows:

	<i>Low Ground.</i>	<i>Maddens.</i>	<i>Total.</i>
Cows	8	18	26
Heifers	8	7	15
Bull calves	3	5	8

The unsatisfactory water supply is one of the main reasons why the stock at Maddens cannot be increased at present by the purchase of young bulls from peasants.

DISTRIBUTION OF PLANTING MATERIAL.

430 lbs. of vegetable seeds were imported from the U.S.A., the United Kingdom and Teneriffe for sale to growers. The value of these seeds was \$1395.00.

The following planting material was distributed from the experimental stations in St. Kitts and Nevis during the year:—

Vegetable seedlings	333,222
Cane cuttings (new varieties)	16,000
" " (other)	52,500
Ornamental trees and plants	249
Papaw plants	11
Grafted mango plants	13
Budded Avocado pear plants	3
" grapefruit plants	38
" orange	61
Seedling lime plants	6
Guava plants	5
Maize seed	250 lbs.
Peas & Beans for planting	280 "
Groundnuts " "	127 "
Sweet potato cuttings	100,000
Cassava cuttings	12,620

CHEMICAL WORK.

306 samples of milk were analysed and flash point determinations made on samples of kerosene oil for the Customs department. A small number of determinations of exchangeable potash and lime were made on samples of soil from allottees' plots at the Fahies settlement. Three determinations of available phosphate (Trough) were made on soil samples from plots of the high nitrogen and high phosphate experiments with sugar cane.

BOARDS AND COMMITTEES.

The Agricultural Superintendent is Honorary Secretary and Treasurer of St. Kitts Sea Island Cotton Growers Association Ltd., an Income Tax Commissioner and a member of the Forestry Board and of the Research Committee of the St. Kitts Sugar Association.

In Nevis the Agricultural Officer is Chairman of the Forestry Board of that island.

COLONIAL DEVELOPMENT AND WELFARE.

ST. KITTS.

Scheme D. 288—Government Dairy and Agricultural Station, St. Kitts.

A report on this Scheme is included.

NEVIS.

Scheme D. 288.—Agricultural Development in Nevis.

Under this scheme 2,000 wallaba posts were imported from British Guiana and 11,550 yards of fencing wire from the United Kingdom for use on the development of a stock farm at Maddens estate. A start has been made and 1,980 yards of fencing have been erected.

Scheme D. 1179—Facilities for marketing peasants' canes in Nevis.

The pier at Newcastle is being lengthened by 30 feet and a Bedforderry, weighbridge scales and a crane have been ordered from the United Kingdom.

ANGUILLA.

Scheme D. 687—Agricultural Development in Anguilla.

The building of the storeroom and office and the fencing of the station were completed during the year. A mill for grinding corn, an agricultural jeep and a plough were obtained late in the year. Corn is being ground for the peasants at the rate of a cent per lb. The plough has been tried on a small area of the agricultural station and some land of the Government settlement at Landsome estate will be ploughed in 1950.

Report on Government Livestock & Dairy Farm, Bayfords, for the Year ended 31st December, 1949.

METEOROLOGICAL.

Weather conditions were relatively favourable throughout the year. Strong southerly winds accompanied by rain were experienced on 2nd and 21st September. Rain fell on 208 days, the heaviest fall in 24 hours being 4.60 ins. registered on 1st September, and distribution was on the whole good. The annual rainfall was 73.28 ins. as set out below:—

January	...	3.76 ins.
February	...	3.48 "
March	...	7.29 "
April	...	4.96 "
May	...	4.51 "
June	...	3.36 "
July	...	4.78 "
August	...	5.98 "
September	...	18.26 "
October	...	4.64 "
November	...	5.30 "
December	...	6.96 "
Total	...	<u>73.28 "</u>

Rainfall for 1949 was 15.24 ins. above the average for the last five years at Bayfords, *i.e.*

1945	...	58.32 ins.
1946	...	46.70 "
1947	...	57.16 "
1948	...	54.75 "
Mean	...	58.04 ins.

Monthly means of thermometer readings are recorded below:—

Month.	°F. Dry Bulb.		°F. Wet Bulb.		Per cent. Rel. Humidity.		Max.	Min.	
	9 a.m.	3 p.m.	9 a.m.	3 p.m.	9 a.m.	3 p.m.	9 a.m.	9 a.m.	
January	...	71.8	72.8	66.7	66.7	76	71	74.1	58.2
February	...	71.2	72.2	67.4	67.8	81	78	73.9	57.9
March	...	73.1	73.7	69.9	69.7	85	81	75.6	58.3
April	...	73.8	74.9	70.8	70.7	86	81	76.9	57.8
May	...	75.2	75.8	72.5	72.2	88	83	77.9	58.3
June	...	75.4	76.6	73.3	73.7	90	87	78.7	68.5
July	...	77.1	77.9	74.1	73.8	86	82	79.4	71.3
August	...	78.5	79.3	75.0	75.1	85	82	80.8	70.4
September	...	77.4	78.3	75.2	75.1	90	86	79.8	67.4
October	...	77.0	77.7	74.6	74.5	89	86	80.8	67.0
November	...	76.1	76.6	73.3	73.0	87	83	78.5	65.8
December	...	73.9	74.6	70.4	70.8	84	82	76.3	63.2
Means	...	75.0	75.9	71.9	71.9	85.6	81.8	77.6	63.8

Highest Maximum temperature was 83° F. recorded on 18th August, while Lowest Minimum temperature was 54° F. recorded on 26th March.

AGRICULTURAL.

2½ acres was tractor ploughed and planted to corn early in the year. This area yielded slightly more than 2,000 lb. grain per acre. A somewhat larger area was cultivated in preparation for planting early in 1950. Crops of Black eye peas, Red beans and Sweet potatoes were also grown the potatoes being largely used for stock feed though some quantity was sold for human consumption.

Maintenance of the vegetable garden and fruit orchard was continued and grapefruit, seedling orange and citron plants were set out.

Two Paddocks were cultivated and replanted with Elephant grass while four others were shallow ploughed to give fresh vigour to the grass stools. Five paddocks received dressings of sulphate of ammonia.

Nursery plots of the following fodder grasses have been established for eventual trial under prevailing conditions:—

Guatemala grass.

Rhodes grass.

Antigua hay grass.

Barbados sour grass.

Tropical Kudzu.

Molasses grass.

Alfalfa.

Giant Star grass was tried but does not appear to be better than either Carpet grass or Devil grass.

The spread of a wild legume known locally as "Black Bush" is causing grave concern. The plant is a perennial reproducing vegetatively as well as by seed, and the latter have the power of remaining dormant in the soil for long periods. Local method of eradication is by use of the mattock but this method proves both expensive and slow. Eradication by tractor ploughing is visualised but this will be restricted to the less mountainous paddocks. Control by use of weedicides will also be tried.

CATTLE.

The herd total was 68 head on 1st January, and by the end of the year it was 82 head, a net increase of 14. This is allocated under:—

Bulls (pure bred Holstein)	...	2
" (grades—2 yrs.)	...	2
" (grades—under 2 yrs.)	...	6
" (calves)	...	10
Cows (foundation)	...	17
" (grade Holstein)	...	8
Heifers (grades—2 yrs.)	...	15
" (grades—under 2 yrs.)	...	8
" (calves)	...	14
Total.		82

Eleven animals left the herd during the year which are accounted for as follows:—

Deaths	...	...	2
Destroyed	...	...	1
Sold for slaughter	...	...	2
Sold for breeding	...	...	4
Transferred	...	...	1
Total			11

The numbers were, however, augmented by

Births	...	24
Purchases	...	1
Total		25

21 cows and 3 heifers calved giving a total of 24 calves of which 10 were bulls and 14 heifers, 41.7% and 58.3% respectively. The former Holstein bull, Locust Lodge Sampson, was the sire of 7, Pabst Posch Ghandi of 16, while 1 was sired by Carnation Minuteman, a Holstein bull owned by the Jamaica Department of Agriculture, by artificial insemination.

Recording of weights at birth gave interesting results. The heifer calves ranged in weight from 107 lb. to 56 lb. with an average of 71.5lb., and the bull calves varied between 88lb. and 60 lb. with an average of 74.1 lb. The average weight of the entire lot was 72.6 lb. Eleven calves were above average weight, a similar number below while two were above average.

During the year a young Holstein bull was imported from England. This animal and the Canadian Holstein bull Ghandi are reserved for farm cows. Three young grade Holstein bulls are also being reserved for use with the grade Holstein heifer. A young half-bred bull was placed at stud for visiting cows in January but some time later instructions were received for this centre to be closed down. This bull now stands at stud at Stapleton estate.

Stud services for the period under review were:—

Purebred Holstein bull (Canadian)	...	50
" " " (English)	...	5
Half-bred " "	...	2
Total Farm services		57
Half-bred Holstein bull	...	30
Total Outside services		30

Work on artificial insemination of Farm cows was continued by the Veterinary Officer with semen transported, by plane from Jamaica; 12 animals were inseminated, divided equally between cows and heifers, but there were no successes. Of those inseminated in 1948, one cow calved on the 27th September with a half-bred heifer calf. The progeny gives promise to be a normal healthy animal.

At first glance the results appear disappointing, but mention must be made of certain factors operating against success by this method, namely, percentage of heifers inseminated, experience elsewhere having shown that it is difficult to get heifers in calf by A. I.; use of semen of low motility caused by melting of ice in container or damage to container in carriage; insemination of three animals which it has not been possible to get in calf by natural means. Further trials will be carried out in 1950 by which time the heifers will have become cows making it somewhat easier for A.I. to succeed.

Health of animals generally was good. Regular dipping in arsenical dip secured virtual freedom from ticks and tick borne diseases, and T.B. testing indicated that the herd was free from this disease. A single case of retained placenta was recorded. A yearling heifer succumbed to choke and a young bull died some weeks after an operation for hernia in the region of the umbilicus. Coccidiosis and worms proved to be the most serious complaints of young calves which is attributed to the lack of a sufficient number of calf paddocks. As a result two calves died and a third had to be destroyed as incurable. Two cows suffering from acute mastitis following injury to the udder were successfully treated.

The milk shed was improved by the installation of one dozen steel stanchions to replace the wooden ones which had been in use since the latter part of 1947. These besides being easier to clean and operate were in most cases preferred by the cows which appeared to appreciate the extra comfort afforded.

Milking by machine was also instituted during the year when a "Gagoinette" Bucket Plant came into use. This machine possesses the advantage of mobility and a minimum of tubing to be sterilized, the pulsators, however, require watching. Experience has shown that some cows let down their milk readily thus reducing stripping to a minimum whereas others do not let down their milk readily and in such cases excessive stripping has to be practised.

Records show that 68,054 lb. milk was produced in 365 days, an increase of 11,477 lb. over the preceding year. Testing for butterfat content was again carried out by the Agricultural Superintendent twice a month, and the average butterfat content of the milk of each animal was quite satisfactory. Averages varied between 3.96% and 5.42%. Butter manufactured on the Farm found a ready demand, but production ceased when the breakdown of the frigidaire removed the sole means of preserving the cream and of preparing it preparatory to churning.

The following tables summarise the results of lactations of adult cows and first calf heifers completed during the year:—

ADULT COWS.

Lactation Yields.	Milked without calves.		Milked with calves.	
	Number.	Percentage of total.	Number.	Percentage of total.
	Cows.	Per cent.	Cows.	Per cent.
Under 1000 lb. ...	1	12.5	1	12.5
1000—2000 lb. ...	—	—	3	37.5
2000—3000 lb. ...	3	37.5	1	12.5
3000—4000 lb. ...	1	12.5	1	12.5
4000—5000 lb. ...	—	—	1	12.5
5000—6000 lb. ...	2	25.0	1	12.5
Over 6000 lb. ...	1	12.5	—	—
Total ...	8	100	8	100
Average lactation ...	3,651 lb. in 238 days		2,574 lb. in 200 days.	

FIRST CALF HEIFERS.

Lactation Yields.	All milked without calves.	
	Number.	Percentage of total.
	Cows.	Per cent.
2000—3000 lb. ...	1	50.0
3000—4000 lb. ...	—	—
4000—5000 lb. ...	—	—
5000—6000 lb. ...	1	50.0
Total ...	2	100.0
Average lactation ...	4,347 lb. in 330 days.	

Records of 18 lactations completed during the year are set out below in detail. One Zebu cow, Maud, failed again as a second calver as by no means could she be induced to let down her milk. Another, May, dried up rapidly as a result of her calf not being brought besides her at milking time for the first two days. When the calf was brought to her on the third day she would not notice it.

LACTATIONS OF COWS & HEIFERS.

Cows.	Breed.	Yield lb. milk.	Max. lb. week.	Per cent. Fat.	lb. Fat.	Lactation days.
Ellen II	Grade Zebu	6,188	237	4.15	256.8	324
Blossom	Holstein	5,996	233	4.43	265.4	276
Sally	Holstein	5,819	185	4.07	236.8	332
Rose	Creole	5,204	184	4.09	212.8	325
Mary	Creole	4,764	151	3.98	189.6	324
Buttercup	Grade Jersey	3,407	156	3.97	135.2	270
Emily	Grade Zebu	3,327	139	5.42	180.3	296
Belle	Creole	2,982	184	4.79	142.8	250
Lilian	Creole	2,763	152	4.62	127.6	200
Young Girl	Creole	2,291	204	4.17	95.5	170
Bronte	Creole	2,017	90	4.86	98.0	218
Lucille	Grade Zebu	1,933	154	4.70	90.8	166
Lizzie	Creole	1,530	189	3.97	60.7	100
Jane	Creole	1,518	81	4.65	70.6	196
May	Grade Zebu	40	16	—	—	35
Maud	Grade Zebu	27	23	—	—	21
Beryl	Holstein	5,990	180	3.96	237.2	377
Connie	Holstein	2,696	98	4.69	126.4	284

The first 16 animals listed above are "cows", and the last two are "first calf heifers". The term "Holstein" refers to three-eighths Holstein blood.

In the following table is shown the average composition of the milk which was produced on the Farm during the year.

COMPOSITION OF MILK.

Month.	Total Solids. %	Fat. %	Solids not Fat. %
January	13.02	4.31	8.71
February	12.90	4.16	8.74
March	13.42	4.69	8.73
April	12.97	4.27	8.70
May	12.40	3.88	8.52
June	12.61	3.99	8.62
July	12.87	4.21	8.66
August	12.90	4.17	8.73
September	12.73	4.06	8.67
October	12.83	4.19	8.64
November	12.88	4.24	8.64
December	12.94	4.28	8.66
Means	12.87	4.20	8.67

EQUINES. With the decision to reduce the number of animals at Bayfords, three half bred fillies were sold at auction late in May. The number was further reduced by the death of the Canadian light draft horse and at 31st December there were left the following:—

- 1 Creole brood mare.
- 1 Creole mule.

A post mortem revealed the cause of death of the horse to be the type of "colic" which is the most serious sickness attacking equines in the island. It is noteworthy that this animal had had two mild attacks of indigestion during the year and recovered from both but succumbed to the third attack which was of long duration.

Stud services for the year were as follows:—
9 mares 70 services.

This gives an average of 8 services per mare.

Pigs.

Six litters of pigs were born during the year giving a total of 42 young pigs of which 39 were born alive and 3 were still born. One little pig died when it was a day old, but all other pigs enjoyed good health. Details of litters are given below:—

<i>Dam.</i>	<i>Boars.</i>	<i>Gilts.</i>	<i>Still Born.</i>	<i>Litter Total.</i>
1. Gilt	2	1	...	3
2. Sow	4	4	1	9
3. Sow	2	5	1	8
4. Gilt	3	4	...	7
5. Sow	5	4	1	10
6. Gilt	3	2	...	5
Total	19	20	3	42

Breeding stock was increased by the purchase of a young English Berkshire boar and two young Berkshire-Large Black gilts. Present establishment now stands at:—

- 1 English Berkshire boar.
- 1 Canadian
- 3 " sows.
- 1 " gilt.
- 2 Cross bred
- 2 Native

GOATS.

A pure bred British Alpine buck goat stands at stud at Bayfords. Despite his rangy appearance this animal is fast becoming a popular choice as a sire, and his 'gets' show great promise. Stud services for the period numbered 26.

POULTRY.

At the beginning of the year the poultry population consisted of the following:—

Pullets & Hens (R.I.R.)	22
„ (½ bred W.L. & B.R.)	10
Cockerels (R.I.R.)	5
Total	37

A total of 168 eggs were incubated in three lots from which 116 chickens were obtained. A number of these were sold for rearing or table use while the remainder are being held for replacements. Total number of birds on the Farm at present is 65 allocated under:—

Hens (R.I.R.)	... 17
„ (½ bred W.L. & B.R.)	9
Cockerels (R.I.R.)	... 5
Young stock	... 34
Total	... 65

Eggs produced during the year numbered 2,371 which are accounted for as follows:—

Sold for eating	... 1534
„ „ hatching	... 596
Incubated on the Farm	... 168
Broken, eaten by rats, &c.	61
In hand	... 12
Total	... 2371

Late in the year it was discovered that some of the young birds were attacked by Eye Worm (Manson's). Removal by forceps under anaesthetic is being tried, and an attempt is being made to keep the area free from roaches.

G. W. BELLOT,
Farm Manager.

Staff changes.

Mr. S. H. Abbott, Agricultural Officer, Tortola, B.V.I., was appointed Agricultural Officer, Nevis, and assumed his duties on the 4th July.

Mr. S. L. Henry, Marketing Officer, Nevis, acted as Agricultural Officer from January to July 4th in conjunction with his own duties.

Miss M. Stevens, Junior Clerk, in the department in Nevis, was transferred on promotion to Tortola, B.V.I., in October.

R. E. KELSICK,
Agricultural Superintendent.

8th March, 1950.

APPENDIX I.

Principal Exports from St. Kitts, Nevis and Anguilla.

Commodity.	1938.		1947.		1948.		1949.	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Sugar (tons) ...	26,481	204,835	531,631	756,560	30,448	829,353	33,781	918,110
Molasses (gals.) ...	600,828	8,770	574,786	13,490	947,255	21,348	1,067,807	15,023
Tomatoes (crates of 20 lb)	2,921	445	—	—	—	—	—	—
Cotton Lint (bales of 400 lb) ...	1,824	45,193	1,155	48,240	616	30,801	1,478	78,730
Cotton seed, meal cake and oil ...	—	1,204	—	62	—	184	—	962
Coconuts and coconut products ...	—	349	—	446	—	453	—	1,569
Livestock ...	—	1,309	—	4,557	—	1,404	—	1,366
Hides and Skins ...	—	230	—	1,797	—	1,231	—	792
Other Agricultural products ...	—	430	—	556	—	474	—	861
Salt (Brls. of 300 lb) ...	26,947	3,240	54,645	21,441	32,936	12,633	38,561	15,356
Total ...		266,005		847,149		897,881		1,032,769

Value of Imports of certain Commodities into St. Kitts, Nevis and Anguilla in hundreds of pounds sterling (£ 00).

Foodstuffs for human consumption.	1938	1947	1948	1949
Wheaten flour ...	270	1,211	1343	820
Pulses ...	4	16	51	47
Rice ...	113	227	169	214
Cornmeal (maize) ...	58	164	157	155
Bread and Biscuits ...	22	37	38	35
Butter and Substitutes ...	78	171	127	193
Lard and Substitutes ...	56	109	99	100
Edible oils ...	10	72	9	30
Preserved milk ...	2	46	68	51
Cheese ...	11	86	52	63
Preserved meat ...	63	141	252	279
Preserved fish ...	66	229	264	332
Fruit and Vegetables ...	24	97	83	82
Coffee ...	6	17	20	16
Tea ...	6	15	14	13
Cocoa ...	9	35	31	30
Sugar ...	43	65	123	58
Total ...	841	2738	2900	2518
ANIMAL FEEDING STUFFS ...	39	50	46	51
FERTILIZERS ...	185	207	430	431
FERTILIZERS (Volume in tons) ..	2,665	1,245	2,237	1,944

APPENDIX 2.

Statement of Receipts and Expenditure in connection with the marketing of peasants' canes from Government land settlement estates in St. Kitts.

	Receipts.	Expenditure.
	\$	\$
st payment to allottees		
Fahies	\$8060.27	
Sadlers	7859.08	
Harris	2103.82	18023.17
st additional payment for canes @ 18c. p.t.		
Fahies	\$253.24	
Sadlers	240 20	
Harris	122.72	616.16
nd additional payment for canes @ 89.7030c. p.t.		
Fahies	\$1167.76	
Sadlers	1017.36	
Harris	374.21	2559.33
onus payment for canes @ 89.1306c. p.t.		
Fahies	\$1110.96	
Sadlers	1143.98	
Harris	326.31	2581.25
Deductions for rent		
Fahies	\$883.18	
Sadlers	1126.39	
Harris	1206.23	3215.80
Deductions for artificial manures		
Fahies	\$1257.96	
Sadlers	917.12	
Harris	367.42	2542.50
Deductions for agric. tools supplied		
Fahies	\$4.16	
Sadlers	27.04	
Harris	45.94	77.14
Deductions in respect of arrears		
Fahies	\$175.04	
Sadlers	130.42	
Harris	422.80	728.26
Bonus payment to labourers		
Fahies	\$461.57	
Sadlers	388.61	
Harris	179.10	1029.28

Carried forward

APPENDIX 2—(cont'd).

		Receipts. \$	Expenditures \$
Brought forward			
Marketing expenses			
Fahies	\$5178.38		
Sadlers	4662.91		
Harris	2121.83		11963.12
Additional marketing expenses, roads and marketing commission			
Fahies	946.01		
Sadlers	778.64		
Harris	\$490.38		2215.03
Repayment by ex-service men at Sadlers in respect of advances for cultivation			205.57
Fahies 2307t. 19c. 2q. @ \$6.66	\$15371.12		
89.7030c.	2070.32		
89.1306c.	2057.12	19498.56	
Sadlers 2165t. 12c. 1q. @ \$6.66	\$14423.00		
89.7030c.	1942.62		
89.1360c.	1930.22	18295.84	
Harris 943t. 2.c 2q. @ \$6.63	\$6281.02		
89.7030c.	846.00		
89.1306c.	840.60	7967.62	
Excess receipts			5.41
		45762.02	45762.02

APPENDIX 3.

Statement of Receipts and Expenditure in connection with the marketing of canes from Nevis for the 1949 crop.

	<i>Receipts</i>	<i>Expenditure</i>
	\$	\$
Brought forward from previous season ...	14.61	
First payment to growers on 6540 tons 16 cwts. 3 qrs. 7 lbs. ...		34458.22
Shipping expenses ...		1706.71
Porterage on chain slings & trucks ...		15.04
Lighterage " " " ...		16.00
Hire of chain slings ...		14.40
Wages to clerical assistant ...		626.13
Supplies and incidentals ...		151.97
Wages to night watchman on pier ...		188.40
Rent of land at Newcastle ...		8.00
Lighterage on canes to St. Kitts ...		5643.73
Truckage of canes from Newcastle to Charlestown ...		733.32
Overtime to marketing assistants ...		16.80
Final payment to growers @ 95c. per ton ...		6213.80
Marketing Commission @ 1% ...		502.82
Sale of 6254 tons 1 cwt canes @ \$6.66 per ton ...	41652.00	
Boatage allowance @ 24c. per ton ...	1500.98	
Additional payment @ \$1.14 per ton ...	7129.62	
Excess receipts ...		1.87
	<u>50297.21</u>	<u>50297.21</u>

APPENDIX 4.

Statement of Receipts and Expenditure in connection with the marketing of peasants' cotton in Nevis for the 1948-49 crop.

CLEAN LINT

	<i>Receipts</i>	<i>Expenditure</i>
	\$	\$
To amount brought forward from 1947-48 ...	1213.69	
By expenses in cotton house ...		1369.15
temporary staff ...		408.83
fire insurance ...		62.93
porterage ...		242.70
incidentals ...		61.75
cess ...		1683.37
export duty ...		1683.37
pier dues ...		241.95
lighterage ...		292.31
advances on seed cotton @ 17c. ...		92090.02
" " " " 2nd payment @ 2 c. ...		10834.12

APPENDIX 4—(cont'd).

CLEAN LINT—(cont'd).

	Receipts.	Expenditure
	\$	\$
fee to grader in U.K. ...		443.55
forms ...		.02
seed purchased from growers ...		341.97
ginning and baling ...		6739.10
rent of Government warehouses ...		437.70
final payment to growers @ 3c. ...		16251.18
marketing commission @ 2% ...		2746.36
To sale of lint in U.K. ...	131293.95	
sale of seed ...	6024.13	
By amount carried forward ...		2601.36
	138531.77	138531.77

APPENDIX 5.

Statement of Receipts and Expenditure in connection with the marketing of peasants' cotton in Nevis for the 1948-49 crop.

STAINED LINT.

	Receipts	Expenditure
	\$	\$
To amount brought forward from 1947-48 ...	125.28	
By expenses in cotton house ...		1032.86
temporary staff ...		308.41
fire insurance ...		47.47
portorage ...		183.05
incidentals ...		46.58
lighterage ...		164.20
pier dues ...		137.52
advances on seed cotton @ 4c. ...		16029.32
ginning and baling ...		5146.36
truckage on seed from stained cotton ...		162.32
rent of Government warehouses ...		330.24
freight on baled lint to U.K. ...		2887.92
expenses in U.K. on stained lint ...		230.66
crushing of seed from stained cotton ...		561.75
marketing commission ...		562.79
To sale of stained lint ...	22959.84	
" " seed ...	132.00	
" " rough meal ...	47.64	
estimated nett value of stained lint on hand ...	5000.00	
By excess receipts (estimated) ...		433.21
	28264.76	28264.76

APPENDIX 6. Return of Rainfall in St. Kitts for 1949.

Inches.

Station.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Lamberts	4.36	6.08	2.07	10.15	2.94	3.00	5.40	5.25	28.83	5.46	3.98	13.11	90.57
Belle Vue	3.88	3.89	5.34	4.86	3.08	2.11	4.36	6.93	21.50	7.28	6.79	9.96	79.98
Willetts	1.61	2.36	3.31	3.56	5.87	3.41	8.55	5.55	22.08	8.47	8.13	5.14	78.34
Bayfords	3.76	3.48	7.29	4.96	4.51	3.36	4.78	5.98	18.26	4.64	5.30	6.96	73.28
Bourkes	3.20	3.98	4.09	2.55	2.68	2.26	5.63	7.21	25.57	5.57	4.71	5.52	72.97
Fahies	4.10	4.17	3.26	3.14	3.20	3.00	4.01	6.23	24.56	5.27	7.00	4.72	72.66
Cou Phillips	2.62	3.85	6.44	2.20	2.35	3.71	4.86	6.55	20.85	7.20	3.20	6.79	70.62
Harris	2.98	2.80	4.13	4.34	3.13	2.23	4.16	7.16	19.81	5.95	5.38	7.51	69.88
Stapleton	3.18	3.36	6.42	3.17	2.26	2.81	5.01	5.72	18.68	4.75	7.33	6.56	69.45
Miliken	3.53	3.06	5.95	4.71	3.96	2.66	5.25	5.39	16.29	5.37	6.37	5.65	68.19
Mansion	2.78	2.49	6.12	3.59	2.76	2.47	4.43	7.25	18.50	4.72	5.67	7.09	67.97
Belmont	2.20	2.20	2.92	3.14	3.77	3.07	7.32	5.50	21.83	5.84	5.73	4.15	67.67
Caines	2.34	2.12	2.33	4.62	3.71	2.56	3.01	5.09	26.09	4.29	4.81	6.11	67.08
Molliuex	2.32	3.27	3.93	3.93	4.05	2.36	4.66	6.63	17.08	4.01	5.52	7.25	66.90
Saddlers	2.32	2.82	3.74	3.44	3.17	2.27	3.98	6.70	20.16	5.82	5.17	6.90	66.49
Whites	3.59	2.25	5.81	3.36	3.34	2.53	4.27	6.47	20.15	3.80	3.87	7.49	66.37
Estridge	2.14	3.39	7.01	3.67	2.74	2.46	4.14	6.37	17.33	4.87	5.49	6.46	65.42
Wingfield	3.95	3.81	5.65	2.65	2.50	2.10	3.38	5.00	17.30	4.83	5.40	8.85	65.42
Shadwell	3.61	2.50	4.53	3.73	2.51	2.98	4.96	4.86	18.84	4.58	5.21	5.72	64.03
Parsons	2.80	2.79	3.53	3.35	4.05	2.05	4.94	5.35	17.54	6.16	5.22	5.37	63.15

APPENDIX 6.—(Cont'd.)
Return of Rainfall in St. Kitts for 1949.
Inches.

Station.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Brothersons	1.72	1.95	2.70	2.83	2.99	1.97	8.00	5.45	21.04	4.47	5.39	2.88	61.39
Lodge	2.26	2.39	5.20	4.08	3.79	2.27	4.30	6.21	18.11	3.59	3.93	4.27	60.40
Mills	2.81	2.90	6.67	3.54	2.69	2.48	3.58	5.81	14.72	3.86	4.27	6.73	60.08
Brighton	2.03	2.04	5.11	3.75	3.37	2.32	4.05	5.72	16.77	2.78	4.16	6.40	58.50
Mt. Pleasant	1.84	1.26	3.17	3.28	3.67	2.10	2.92	5.54	18.67	5.95	5.83	3.90	58.13
New Guinea	2.36	2.44	4.18	1.54	1.91	3.45	3.75	5.28	18.87	5.70	3.58	4.80	57.86
West Farm	3.12	2.67	4.03	3.08	1.43	2.72	4.21	4.07	18.04	3.54	5.23	5.67	57.81
Stonefort	1.82	3.89	2.36	3.80	1.20	2.78	4.92	3.12	19.97	2.43	3.70	7.70	57.69
Needsmust	2.70	2.20	4.20	3.50	2.75	2.55	2.90	4.30	15.25	6.30	5.00	5.30	56.95
Cranstouns	2.09	2.71	2.11	2.09	1.84	2.84	4.34	6.10	21.88	3.18	4.27	2.89	56.37
Pond	1.78	1.73	3.83	2.87	2.46	2.82	4.65	3.85	17.67	4.08	4.96	4.84	56.44
Cunningham	2.49	1.82	5.45	3.06	2.81	2.34	3.22	4.83	15.74	2.68	3.02	5.18	52.91
Basseterre Factory	2.42	2.12	3.74	3.21	2.15	2.12	4.44	4.21	11.74	4.39	4.22	5.02	52.78
L. Bourryean	1.76	2.43	5.01	3.27	2.42	2.19	3.28	4.65	14.54	3.32	2.94	6.38	52.19
Oliveas	3.06	2.19	4.13	2.88	2.12	2.39	3.70	4.11	13.29	4.26	4.34	4.65	51.84
Douglas	2.30	1.81	3.93	3.18	2.81	1.77	3.04	4.11	13.53	4.12	5.94	4.93	51.57
La Guerite	2.62	2.13	3.37	2.40	1.71	1.97	4.43	4.22	15.88	2.93	4.43	5.31	51.44
Camp	2.44	1.93	3.13	1.97	1.35	2.35	4.01	2.92	16.96	3.05	5.06	4.24	49.43
Buckleys	1.97	1.81	3.34	2.26	1.53	3.99	3.99	3.56	15.57	3.14	4.21	4.56	48.23
Canada	1.44	2.02	3.87	2.64	1.91	1.96	3.35	4.02	12.31	3.56	3.69	4.14	44.91
Hermitage	2.06	1.50	3.63	2.78	2.58	1.40	2.76	4.18	13.71	2.13	2.59	5.10	44.72

APPENDIX 6—(cont'd).

AVERAGE RAINFALL 1914-1949.

In 1914 the average rainfall on 31 Stations was 52.92 in.

1915	"	"	32	"	75.59	"
1916	"	"	35	"	69.51	"
1917	"	"	33	"	43.53	"
1918	"	"	30	"	52.44	"
1919	"	"	29	"	62.84	"
1920	"	"	28	"	37.13	"
1921	"	"	29	"	47.09	"
1922	"	"	33	"	44.84	"
1923	"	"	30	"	34.58	"
1924	"	"	28	"	68.13	"
1925	"	"	32	"	43.54	"
1926	"	"	27	"	62.57	"
1927	"	"	29	"	64.36	"
1928	"	"	29	"	53.25	"
1929	"	"	28	"	52.55	"
1930	"	"	31	"	45.98	"
1931	"	"	31	"	57.60	"
1932	"	"	33	"	77.27	"
1933	"	"	36	"	63.97	"
1934	"	"	38	"	55.34	"
1935	"	"	39	"	48.89	"
1936	"	"	38	"	63.12	"
1937	"	"	37	"	44.78	"
1938	"	"	37	"	58.38	"
1939	"	"	37	"	45.69	"
1940	"	"	39	"	54.37	"
1941	"	"	40	"	50.92	"
1942	"	"	41	"	81.53	"
1943	"	"	40	"	66.95	"
1944	"	"	41	"	53.02	"
1945	"	"	41	"	46.74	"
1946	"	"	39	"	37.95	"
1947	"	"	41	"	48.22	"
1948	"	"	40	"	50.24	"
1949	"	"	40	"	63.71	"

The mean rainfall for 36 years is 54.50 inches, so that the rainfall for the year 1949 is 9.21 inches above the mean.

MEAN MONTHLY RAINFALL.

		1949	1914-1949
		Inches.	Inches.
January	...	2.71	3.59
February	...	2.76	2.10
March	...	4.48	2.46
April	...	3.52	3.36
May	...	2.90	4.33
June	...	2.56	4.14
July	...	4.52	4.78
August	...	5.45	5.48
September	...	19.01	6.59
October	...	4.70	6.46
November	...	5.03	6.86
December	...	6.07	4.35
Annual Mean		63.71	54.50

APPENDIX 7.

Latitude 17° 21' N.

METEOROLOGICAL REPORT FOR 1949.

Heights) Barometer 157 feet.

Longitude 62° 45' W

AGRICULTURAL DEPARTMENT, ST. KITTS.

above M.S.L.) Rain Gauge 152 feet.

Months.	Barometric Pressure reduced to Sea-Level, 32° Fahrenheit and corrected for gravity.				Temperatures. °F.								Vapour Pressure Ins. of Mercury.				Relative Humidity per cent.			Inches Rainfall	No. of days on which rain fell.	
	9 a.m.	3 p.m.	Mean.	Irrche	Highest.	Lowest.	Maximum Means.	Minimum Means.	Maximum Extreme.	Minimum Extreme.	Mean for Month.	Range for Month.	Dew Point 9 a.m.	Dew Point 3 p.m.	9 a.m.	3 p.m.	Mean.					
January	30.042	29.863	29.952	30.143	29.908		80.1	69.1	83	64	74.6	19	64	64	.603	.594	.599	64.4	62.0	63.2	2.62	16
February	30.091	30.013	30.052	30.204	29.886		80.2	70.5	83	67	75.3	16	66	66	.639	.641	.640	71.9	64.9	67.9	2.13	16
March	30.037	29.961	29.999	30.133	29.791		82.0	70.9	84	67	76.4	17	67	68	.668	.686	.677	69.0	66.0	67.5	3.37	12
April	30.089	30.016	30.052	30.125	29.933		82.9	72.1	84	69	77.5	15	72	69	.722	.718	.720	72.4	69.5	70.9	2.40	9
May	30.042	29.988	30.015	30.101	29.940		84.1	74.3	87	70	79.2	17	71	71	.774	.756	.765	72.5	69.5	71.0	1.75	12
June	30.069	30.023	30.046	30.142	29.980		85.2	75.2	87	72	80.2	15	72	71	.777	.771	.774	70.5	67.5	69.0	1.97	7
July	30.056	30.012	30.034	30.094	29.977		85.1	75.1	86	73	80.1	13	73	73	.804	.813	.809	73.0	71.5	72.3	4.43	14
August	30.013	29.950	29.981	30.088	29.778		86.5	76.2	88	73	81.3	15	80	74	.846	.851	.849	72.0	73.0	72.5	4.22	10
September	29.987	29.879	29.933	30.074	29.806		84.6	74.4	87	71	79.5	16	74	73	.840	.845	.843	79.4	77.0	78.2	15.88	16
October	29.964	29.899	29.931	30.039	29.849		82.0	74.5	87	70	78.2	17	73	74	.831	.840	.836	76.0	74.0	75.0	2.93	12
November	29.960	29.881	29.920	30.082	29.721		83.1	73.2	84	68	78.1	16	72	72	.801	.780	.791	75.4	73.5	74.5	4.43	17
December	29.966	29.870	29.918	30.046	29.769		80.4	70.4	84	61	75.4	23	71	70	.751	.736	.744	77.8	73.5	75.7	5.31	14
Means	30.026	29.946	29.986	—	—	—	83.0	72.9	85.3	68.9	77.9	16.5	71.3	70.4	.755	.753	.754	72.8	70.2	71.5	51.44	155

REMARKS:—Highest Maximum Temperature ... 88° F on 10th, 12th, 14th, 15th, 18th, 21st August.

Lowest Minimum ... 61° F on 14th December.

Highest Barometer (corr.) ... 30.204 on 8th February.

Lowest Barometer ... 29.721 on 3rd November.

Greatest Rainfall in 24 hours ... 4.43 inches on 1st September.

